OCTOBER 13, 1952 NEWS ISSUE

Electrical World

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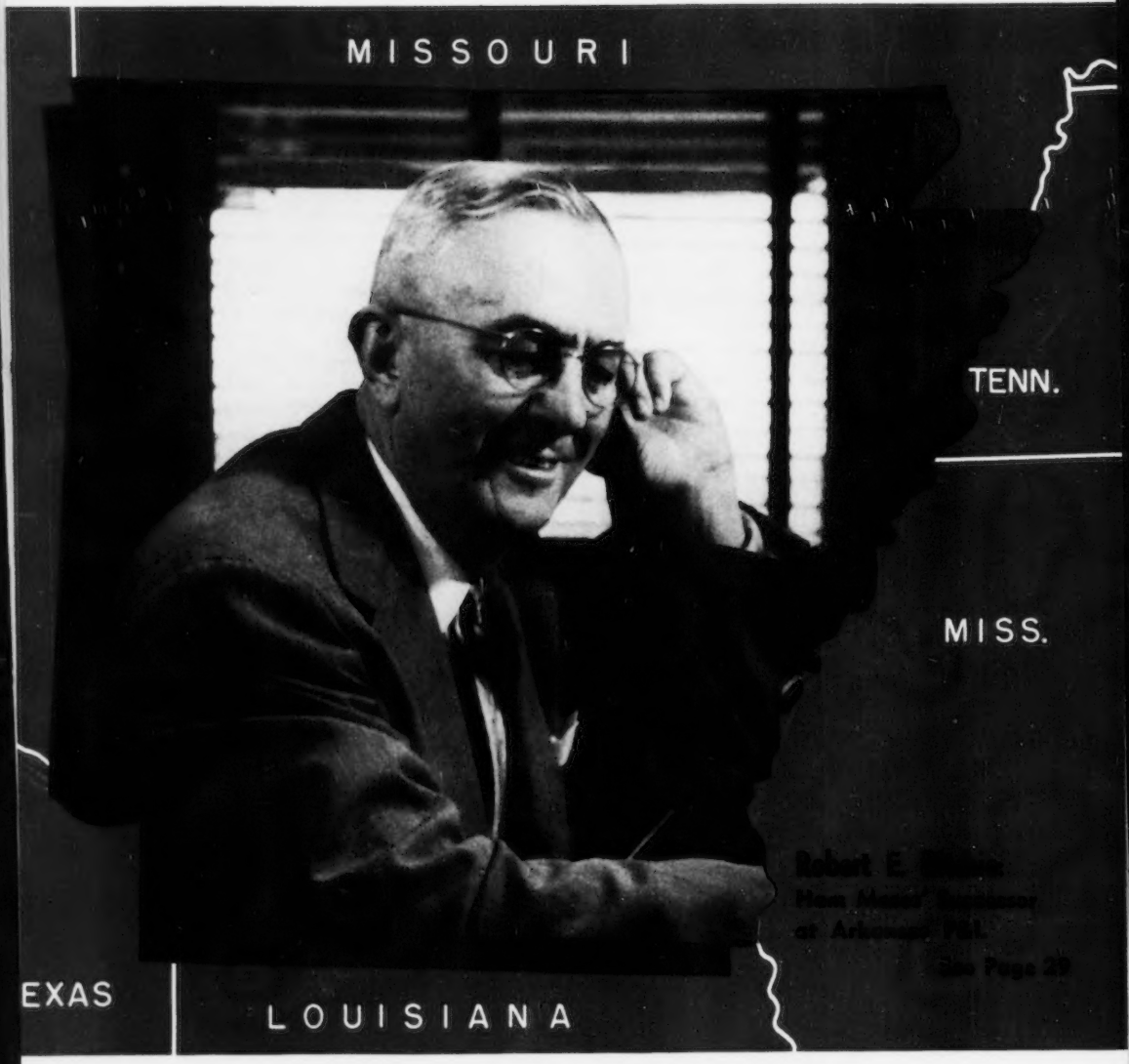


Robert E. [illegible]
Home Manager
at Arkansas P&L
See Page 29

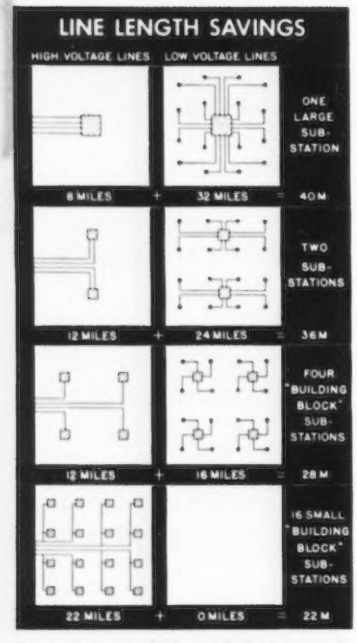
Pennsylvania P&L Welcomes Stockholder No. 75,000 . . . Page 32

What's Happening to Defense Spending? . . . Page 50

"Tinker-Toy" models make possible simple visualization of substation arrangements as V. A. Rydbeck, G-E Distribution Engineering, and E. M. Hunter, Substation Engineering, tackle a problem of minimizing system losses.

"Building Block" approach to substation planning helps

REDUCE SYSTEM LOSSES, CUT COSTS


LINE LENGTH SAVINGS
HIGH-VOLTAGE LINES
LOW-VOLTAGE LINES
ONE LARGE SUB-STATION
8 MILES + 32 MILES = 40 M
TWO SUB-STATIONS
12 MILES + 24 MILES = 36 M
FOUR "BUILDING BLOCK" SUB-STATIONS
12 MILES + 16 MILES = 28 M
16 SMALL "BUILDING BLOCK" SUB-STATIONS
22 MILES + 0 MILES = 22 M

Based on theoretical 16-sq. mile load area with 16 feeder points, these diagrams show savings in line mileage with more and smaller substations.

Standardized small substations are now playing an important part in reducing overall costs on many systems.

Spotted where and as the load develops, they not only make possible a flexible building block approach to substation planning, but also pay off in reduced power losses.

The use of many small substations permits more power to be distributed at higher subtransmission voltages and less on the lower voltage circuits where maximum loss occurs.

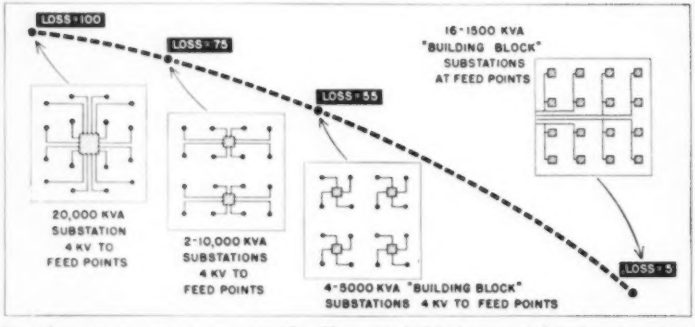
Building block systems make possible considerable savings in overall line mileage. With shorter feeders, voltage regulation is less of a problem. And since small substations inherently mean lower fault currents, they often permit the use of less expensive cutouts in areas of high load density.

For more detailed discussion of these savings, write for GER-667, a reprint of a recent technical paper. General Electric Co., Schenectady 5, N. Y.

301-211

MORE POWER TO AMERICA

GENERAL ELECTRIC


LOSS = 100
LOSS = 75
LOSS = 55
LOSS = 5
16 - 1500 KVA "BUILDING BLOCK" SUBSTATIONS AT FEED POINTS
20,000 KVA SUBSTATION 4 KV TO FEED POINTS
2 - 10,000 KVA SUBSTATIONS 4 KV TO FEED POINTS
4 - 5000 KVA "BUILDING BLOCK" SUBSTATIONS 4 KV TO FEED POINTS

Power losses on some systems amount to 15 to 20 percent of all kw-hrs generated. With maximum losses taken as 100 for a single large substation serving a large area, this chart shows progressively smaller losses are possible with smaller substations. Combination of all costs will determine optimum substation size.

VOLUME 138, NO. 15

October 13, 1952

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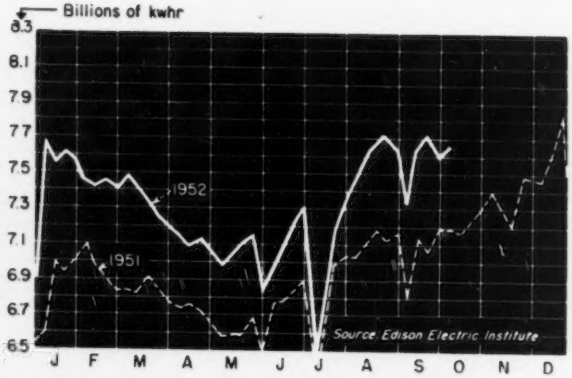

Output Week Ended Oct. 4—7,665,408,000 Kwhr

Per Cent Change From Previous Year

	Total US	New Eng.	Mid. Atlan.	Cent. Ind.	West Cent.	South-east	South Cent.	Rocky Mount.	Pacific NW	Pacific SW
Oct. 4	+7.1	+7.8	+4.4	+6.7	+7.8	+10.8	+7.4	+11.1	−2.0	+11.3
Sept. 27	+7.4	+9.0	+4.6	+7.4	+7.9	+11.2	+8.3	+10.5	−1.9	+9.1
Sept. 20	+10.1	+9.8	+6.0	+9.7	+11.6	+14.2	+24.9	+13.2	−2.5	+7.4

Electric Power Statistics

		Latest Month	Preceding Month	Year Ago
Peak Load (Million Kw)	July	67.2	67.0	63.1
Capacity (Million Kw)	Aug.	78.31	77.96	73.62
Production (Billion Kwhr)	Aug.	34.36	32.52	32.40
Hydro		8.52	8.74	7.82
Fuel		25.84	23.78	24.51
Fuel Consumption				
Coal (Million Tons)	July	7.90	7.66	8.08
Oil (Million Barrels)		4.38	3.91	4.43
Gas (Billion Cu Ft)		98.71	89.29	83.20
Sales (Billion Kwhr)	July	27.70	27.67	26.50
Residential		7.50	7.44	6.55
Commercial		5.30	5.00	4.70
Industrial		12.64	13.20	13.13
Other		2.25	2.03	2.12
Net Income Class A & B Companies ($ Million)	July	64.62	69.88	56.05
Estimated Dec. 52 Peak (Million Kw)	July	80.1	80.0	78.8
Kwhr per Residential Customer (12 Month Average)	July	2,104	2,091	1,933
Revenue per Kwhr Residential Service (12 Month Average)	July	2.78¢	2.78¢	2.84¢
Canadian Production (Billion Kwhr)	July	4.84	4.99	4.63

Business Statistics

FRB Industrial Production Index†††	Sept.	222*	218	223
Gross National Product Annual Rate ($ Billion)	2ndQtr	343.2	339.4	329.3
E. W. 5 Industry Production Index	Sept.	117.0*	113.9	123.5
ENR Construction Cost Index††	Sept.	122.9	122.4	113.8
BLS Consumer's Price Index	Aug.	191.1	190.8	185.5
NEMA Insulation Materials Sales Index†	July	470	500	494
NEMA Electric Appliance Sales Index†	July	234	258	181
NEMA Household Refrig. Sales Index†	July	197	192	97

* Estimated. † 1936=100 †† 1949=100 ††† 1937-39=100 (Unadjusted)

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...in construction practice

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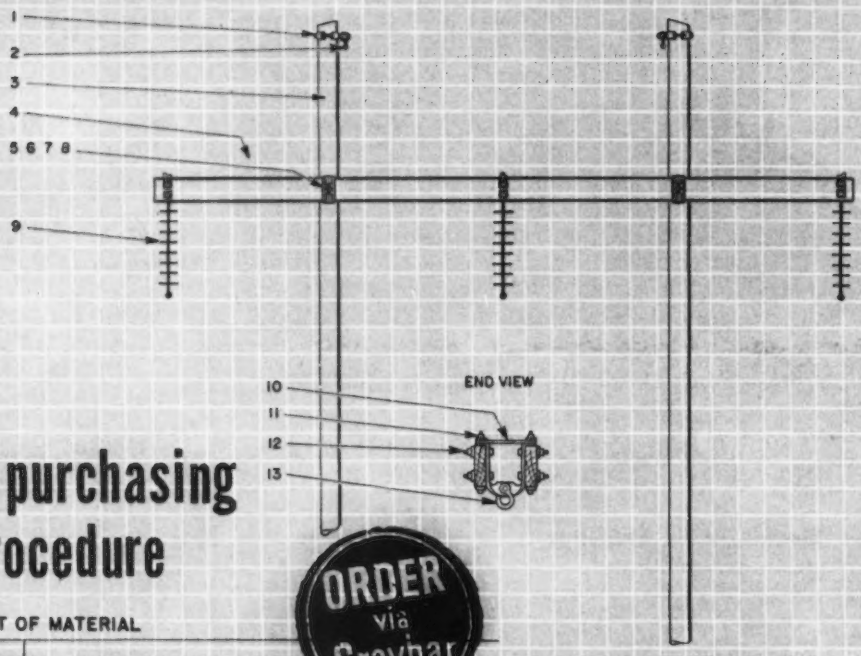

...AND purchasing procedure

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1	2	POLE BAND W/ SHACKLE
2	2	LINK AND STATIC WIRE SUSPENSION CLAMP
3	2	POLE
4	2	CROSSARM
5	2	STUD BOLT 7/8" W/2 SQ. NUTS
6	4	MF LOCKNUT 7/8"
7	4	FLAT GAIN PLATE
8	4	RIBBED TIE PLATE
9	AS REQ'D	SUSPENSION INSULATORS AND FITTINGS
10	3	SPACER FITTING
11	6	MACHINE BOLT 1/2" W/SQ NUT, 2" SQ. X 1/8" (9/16" HOLE), WASHER, 1/2" SPRING LOCK WASHER, 1/2" MF LOCKNUT
12	12	MACHINE BOLT 5/8" W/SQ. NUT, 2 1/4" SQ. X 3/16" (11/16" HOLE) WASHER, 5/8" SPRING LOCK WASHER, 5/8" MF LOCKNUT
13	3	TWISTED SHACKLE

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THE ELECTRICAL WEEK

The Issue's News Highlights—Power became a major campaign issue during the week. President Truman warned that the Republicans, if elected, could be counted on to put an end to reclamation. General Eisenhower countered that as he recalled it it was Teddy Roosevelt, a Republican, who started the whole thing.

Research team doubts that "productivity increases" can be related to the power industry situation . . . Connecticut L&P runs into a second site battle.

Latest from Washington—Depa received reports of a few scattered showers in the Pacific Northwest, but there was no assurance that river flow conditions there would be enough to head off the proposed power limitation order . . . REA reports that about 88% of nation's 5.4 million farms are electrified. Michigan rates highest with a percentage of 98.9%.

Argument begins today before a district court on the charge that REA and Interior Department have gone beyond their legal authority in seeking to finance a steam plant and transmission lines in Missouri. Suit was brought by Kansas City P&L and nine other electric companies in the area.

Private power firms are trying to "pick off industrial loads" in areas of the state served by rural electric co-operatives, according to J. K. Smith, executive manager of Kentucky Electric Co-operative Corp, before state RECC annual meeting. "We will resist this piracy with the utmost vigor," says Smith.

Westinghouse Electric will break ground about Nov. 1 for new meter plant at Raleigh, N. C.

Duquesne Light's Elrama steam station with an initial 160,000-kw capacity will be dedicated this week.

Patterson Engineering Laboratories at Mississippi State College is installing a high-voltage laboratory which will produce up to 1.2 million volts, the amount contained in a mild lightning stroke.

Unusually low flow in Columbia Basin and increasing demand for power has led Corp of Engineers to release storage from its new Albeni Falls reservoir near Newport, Wash., earlier than had been expected.

Labor—Ohio Edison and UWU-CIO sign a contract, subject to WSB approval, which provides for a general wage hike of 11½¢ an hour . . . Tacoma City Council adopts preliminary budget for 1953 which provides for 5% increase for Tacoma City Light employees.

Rates—Cambridge Electric Light has appealed to State Supreme Court for an injunction against Massachusetts Department of Public Utilities' disapproval of general rate increase proposed by company. Residential rates would be upped 17.2% if company is sustained by the court. Incidentally no one opposed the new schedule at the hearings . . . Eastern Shore Public Service of Virginia gets State Corporation Commission approval to raise rates about $68,741 a year.

Arguments before State Supreme Court in an appeal of a group of Manchester industrial plants against a $1.3 million general rate hike approved last spring by PUC for Public Service of New Hampshire were scheduled to begin last week.

From the Southeast—Florida PUC announces it has decided to leave the matter of paying interest on consumers' deposits to discretion of utilities . . . Charleston, Miss., citizens vote almost 2-to-1 to grant Mississippi P&L a new 25-year franchise.

From Far West—Mountain States Power and Mill City, Ore., sign 20-year contract for electric service.

Arthur Anderson & Co has issued its usual yearly booklet on "Rate of Return Allowed in Public Utility Rate Cases." In 1951, it shows, there were nine court and commission cases on rate of return with a high of 8.17%, a low of 5.40% and an average of 6.28%. For copy write, F. M. Beatty, 67 Broad St., New York 4.

Florida P&L issues interesting 17-page report "Facts and Figures, 1942-51"; for copy write, H. E. Simpson, vice president and comptroller, Miami, Fla.

Southern Rocky Mountain Utilities gets Colorado PUC approval to merge with Frontier Power. It will be effected through Southern's issue of 102,000 common shares and $1,140,000 of $10 par debentures, with Frontier stockholders being offered right to exchange their stock for debentures of Southern. SEC and FPC will have to okay.

New York State E&G will celebrate 100 years of public service on Oct. 28 at various places in the state.

U. S. electrical industry will make as much electrical equipment in next 10 years as was made in past 74 years, GE's Pres Ralph J. Cordiner has revealed . . . At a meeting sponsored by Ebasco Services for its clients, Dr C. B. Jolliffe, RCA's vice president and technical director, said country's 19 million TV sets are currently bringing in at least $200 million annually to gross revenues of electric industry as a result of increased power consumption.

Congratulations—Columbus & Southern Ohio Electric elects Harry M. Miller executive vice president . . . Southern California Edison promotes George N. Hawley from assistant to president to vice president in charge of commercial activities, succeeding R. C. McFadden, who resigned . . . Northampton (Mass.) Electric Lighting elects Harrison G. Fish vice president . . . Electric Co-Ordinating Committee of New England elects Central Vermont PS's Pres Albert A. Cree chairman, succeeding Howard J. Cadwell . . . Controllers Institute elects Lester M. LaPorte, vice president and controller of Wisconsin Electric Power, a regional vice president.

Allis-Chalmers Manufacturing Co names J. D. Greenward vice president, succeeding Fred Mackey who resigned (EW, Oct. 6, p 83) . . . Anaconda Aluminum Co, new Anaconda Copper Mining Co subsidiary, elects Francis Owen Case president . . . Leland Leatherman is appointed chairman of Arkansas PSC, succeeding Judge Scott Ward, deceased . . . Kentucky Rural Electric Cooperative Corp elects Sam Hord president.

THE ELECTRICAL WEEK

CONTINUED

All acquisition applications received by SEC from utilities are being screened by the recently formed public utility integration section.

A group of large Consolidated Edison users through their counsel, Orrin G. Judd of Judd & Gurfein, asks PSC to stay electric rate hikes granted recently to the company and to order a rehearing of entire rate case. PSC says only "fifteen or twenty letters" have been received by it asking for rehearing of commission's higher rate order of Aug. 1.

Puget Sound P&L is adding 25,000 kw of capacity every six weeks at its Rock Island hydro plant on Columbia River. Last of six units, scheduled for completion by June 1, 1953, will give the plant a total capacity of 230,000 kw.

Seattle City Light expects to spin its first of three 90,000-kw generating units at Ross Dam around Dec. 15. Second unit is scheduled to go on the lines on Feb. 1 and a third on May 1.

General Public Utilities will pay Nov. 15 a regular common stock quarterly dividend of 35¢ a share and a "special" dividend of 5¢ declared out of income received from its Philippine subsidiaries . . . Union LH&P directors announce they have suspended dividend action pending an adjustment of electric and gas rates by PSC.

IN THE INDUSTRY

At a neighborly celebration on Oct. 3 the people of Virginia and North Carolina dedicated the John H. Kerr Dam and Power Project on the Roanoke River. Originally this was known as the Buggs Island Project. Last year it was renamed for the North Carolina Democrat who at 78 is probably serving his last term in Congress. Last May he was defeated in the primaries.

It will be well into next year before the full 240,000 kw of capacity is in operation. Only two small generators totaling 2,500 kw are in operation. The energy is being used for project purposes.

First of 11 Projects . . . The dedication marked the completion of the first dam in the 11-dam Roanoke River Basin Plan drawn up by the Army Corps of Engineers and approved by Congress. Another project, Philpott, with an installed capacity of 14,000 kw is nearing completion upstream from Kerr Dam.

Absent from the ceremonies was President Truman; so there were no blasts at what he delights in calling the "power monopoly." But beneath the serenity of the occasion there must have been some of those present who could not help but think of another Roanoke River project, that proposed by the Virginia Electric & Power Co at Roanoke Rapids.

This site is 41 miles down stream from the Kerr Dam. For four years the power company has been trying to start construction of its 91,000-kw plant. Strongest opponent has been the Interior Department. Its argument has been that the Roanoke Rapids site is down as Site 3 in the Roanoke River Basin Plan and therefore has been preempted for development by the federal government.

Supreme Court Hearing Soon . . . So far Interior Secretary Chapman has found no support as he fought the case through the Federal Power Commission and up through the federal courts. On Oct. 23 the U. S. Supreme Court is expected to hear oral arguments in the case. Then weeks and maybe months will go by before a decision will be handed down.

Meanwhile the private companies will await it with interest. A ruling against Vepco could result in ending the hopes of private companies of ever building a hydro project on any river whose power the federal government has indicated its intention to develop. And there are very few rivers that the federal government hasn't indicated that it wants to develop.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Cracking or decomposition of hydrocarbon vapors released from coal before they encounter enough oxygen to result in their combustion is proffered as the reason why spreader stokers have often been prone to discharge smoke at partial loads.

Voltages up to 5 kv can be developed in such a simple act as arising from a plastic-upholstered chair.

Attainable efficiencies of steam and gas turbines are approximately equal at a point between 1100 and 1200 F. Above that the gas turbine makes the greater gain as temperature is raised.

Capacitor life in service is closely related to the ionization voltage level of the dielectric used.

Dehydration of mica from corona discharges from generator coils will lead to pinholes or craters and ultimate breakdown of the insulation.

Standardized permissible voltage unbalance on 3-phase circuits is as important as limited voltage range for single-phase motors. Burnouts have occurred with as little as 6.7% unbalance.

Interconnections will grow in scope because it appears cheaper to build the lines for this purpose than to build others to render smaller areas self-sufficient or hold short-circuit values down.

Existing boilers often have inadequate furnace volume to make subsequent installation of spreader-type stokers practicable. Better not be deluded by the hope that generous provision for over-fire air can compensate for the volume deficiency.

Relays workable on carrier current can also be used on microwave.

Efficient wet-compression of an air-water mixture calls for relatively slow rotation, low axial velocity and therefore a machine of relatively large dimensions.

Power Up to 6th on 'Best Issue' List

Rough-and-tumble between Eisenhower and Truman over reclamation leaves Stevenson temporarily on the sidelines

Electric power development and public works projects last week became a high-voltage issue in the Presidential campaign.

Speaking for the Democrats, Pres Harry Truman whistle-stopped along the West Coast shouting that the GOP is bent on turning the West back to the prairie dogs and the sagebrush.

Following him by a few days came Republican Nominee Dwight D. Eisenhower accusing the Democrats of running a "whole-hog federal government" which seeks a monopoly on hydroelectric power development throughout the nation.

Democratic Nominee Adlai Stevenson managed to stay clear of the Truman-Eisenhower fracas for a few days but came in with a rabbit punch from time to time.

Climbing . . . By mid-week power and reclamation ranked sixth among Presidential campaign issues. Ahead of it were: "Time for a change," corruption, Korea, Communism, and inflation.

While Eisenhower limbered up the big guns, a "truth squad" of three Republican Senators followed the President in an effort to refute his statements about power development and other campaign issues. But it soon became apparent that Eisenhower, himself, would have to get into the fray against his former commander-in-chief.

Truman set the tone of the power-reclamation argument when he told an audience at the dedication of Hungry Horse dam in Montana:

"All of you who are here today had better go over and take another good look at this dam; because if the Republicans win this election, it will be a long time before you see another new structure of this kind."

A member of the "truth squad," Sen Francis Case of South Dakota, called the Truman statement the "big lie," and said that it was a Democratic Senator, Paul Douglas of Illinois, who had once pictured Western reclama-

(*Continued on page* 10)

EISENHOWER in Seattle said the Democrats want to run a "whole-hog federal government" that seeks a monopoly on hydroelectric power development throughout the country. Signs in background kidded Democrats

TRUMAN at Hungry Horse (Mont.) Dam dedication told people to "take a good look" at the dam, because they wouldn't see another like it for a long time if the Republicans win this Presidential election

Connecticut Site Battle . . .

. . . shifts back to Norwalk from Stamford. Utility's plan for offshore plant is opposed in both communities

Connecticut Light & Power Co intends to press its plans to build a $15-million power plant in Norwalk, Conn., despite vociferous opposition from the city council and a citizens group, according to Walter F. Torrence, company counsel.

City council and the citizens oppose the plant on the ground that it would decrease the value of "exclusive" shore-front properties and spew fly ash over the city.

The utility, which needs about a half million more kilowatts to meet expected demand in the area, recently swung its site planning back to Norwalk from Stamford. This spring it purchased Cove Island off Stamford for the site of a 550,000-kw plant, but immediately ran into a pitched battle with shore-front interests there (EW, July 14, p 122).

Shift in Plans . . . Now Connecticut L&P has purchased Manresa Island off Norwalk for $810,000 and plans to put the plant there. It had tried to buy Manresa before acquiring Cove, Torrence said, but the owners at that time refused to sell.

The attorney said last week his company planned to petition the Norwalk Zoning Commission "right away" for a zoning exception that would permit the plant to be built. Utility engineers want to get started immediately on the new station, he said, but must wait until the legal question of zoning is decided.

Recently the utility flew a group of Norwalk industrialists, city officials, and newspaper men to Rochester to view a similar plant there in an effort to convince them such an installation would not be a detriment to the Norwalk area.

First Choice . . . Norwalk, rather than Stamford, is the company's first choice for a site for the new station, Torrence said. The location is better from an engineering viewpoint and lies within CL&P's service area while Stamford does not, he pointed out.

Plans to build in Stamford are being held in abeyance until a decision can be reached in Norwalk, Torrence said. The state Public Utility Commission held hearings on the Stamford site in May, but has adjourned them indefinitely pending the outcome of the new move by the utility.

The Possibilities . . . If the Norwalk Zoning Commission grants an exception, citizens there could appeal the decision to the Connecticut PUC.

PUC's decision could in turn be appealed to the state Superior Court.

Australian Hydro Project to Start Producing in '54

Melbourne (McGraw-Hill World News)—The giant Snowy Mountains hydroelectric project in Australia will begin producing power in 1954. At that time 60,000 kw will go on the line. Later on 150,000 kw will be added annually. Eventual output will be 3 million kw. Present Australian output is about 2.2 million kw.

It is hoped that sales of power eventually will return 7.4% on capital cost. In 1952-53 the Australian government will spend about $31 million on the development. Expenditure up until now has been estimated at about $45 million.

The immediate program provides for the Adaminaby Dam, a 15-mile tunnel through the base of the Great Dividing Range, a high dam on the upper Tumut River, a four-mile tunnel from the dam to a large underground power station, and transmission lines and installations to bring the power out of the Australian mountain area.

U. S. technical help is being received in planning and construction work.

Central American States Ask Aid for Power Study

Tegucigalpa, Honduras (McGraw-Hill World News)—At a meeting held here late in August, the Ministers of Economy of Costa Rica, Honduras, Nicaragua, El Salvador, and Guatemala agreed to call on the Technical Assistance Administration of the United Nations for aid in completing a study of the electric power industry in Central America.

In a formal resolution, the ministers of the Central American countries stated that power installations in Central America are insufficient to meet the present and future demands in the various republics. This, in turn, would prevent the continued development of industry, they stated.

They called for a complete study of both present and future hydroelectric projects, a study of the present methods of generation, distribution and consumption, and a study of the possibilities of an interconnection of power producing facilities now existing in the various republics.

For many reasons, mostly political, power produced in one country in Central America is never sold to a neighboring country. As a result, it is not unusual to see a well-electrified town on one side of an international border with another city on the opposite side entirely without electric power facilities.

With the completion of the Lempa River hydro project in El Salvador, experts estimate that this installation will be in a position to sell power to the southern section of Guatemala if international political hurdles can be eliminated.

Georgia Power Co Will Run 3 Grazing Contests

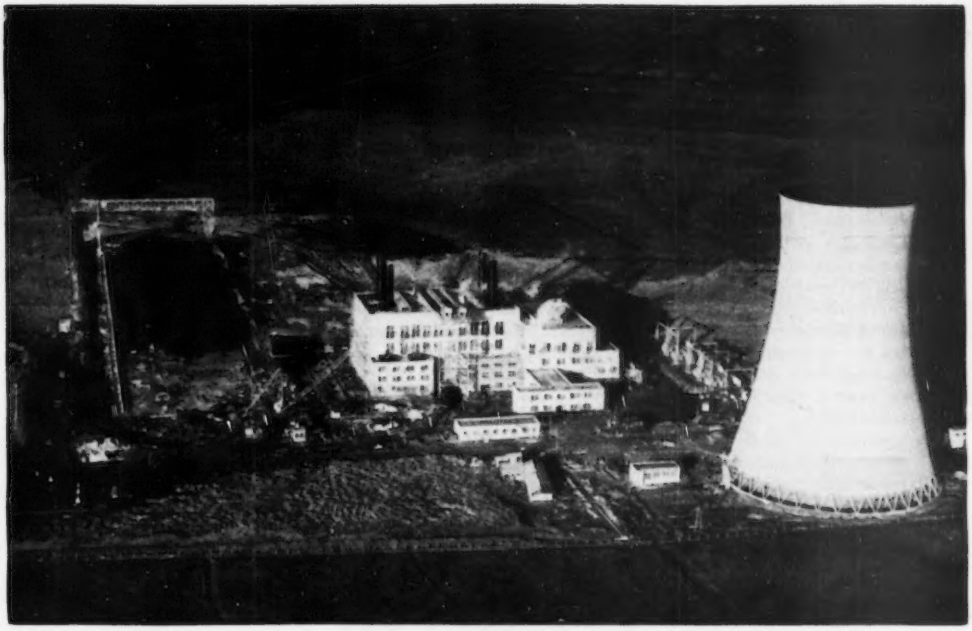
Georgia Power Co will continue for another year its three grazing contests which are conducted in cooperation with the department of vocational agriculture, State Department of Education.

For the fifth year there will be a year-round grazing contest for the Veteran Farm Trainee Group. Prizes totaling $1,000 will be awarded to state and district winners.

Also in its fifth year is the Future Farmers of America winter grazing program with prizes to state and district winners totaling $1,075.

In its second year is the New Farmers of America winter grazing contest with $350 in prizes.

Prizes will be awarded on the basis of the carrying out of the best practices for the individual section of the state in the selection of plot, seeding, plant stand and species, fertilization, liming, soil analysis, utilization, scope of project, and records.



PEAT BOG in the background supplies the fuel for this steam station that recently began operation at Allenwood, County Kildare

How the Irish Got Their Power

Electrical Supply Board of Ireland has just celebrated the silver jubilee of its establishment. The board was set up in 1927 by an act of the Oireachtas (Parliament) to develop the supply and sale of power in Ireland and in particular to operate the Shannon Power Works, begun two years before.

Total power drawn from the country's 60 small plants at that time was 40 million kwhr. Development over the 25 years has brought consumption up to 1.2 billion kwhr.

Shortly after its establishment the board decided against bulk selling of electricity and to treat the young Irish Free State as one area in which it would sell power directly to customers. It absorbed existing municipal authorities and took over their small plants, scrapping all but two of the plants.

In 1927 most of the towns and villages had no power supply. Extensive canvassing and selling campaigns were necessary to induce people to take service for lighting and other minor uses. After that, load-building came easier.

Seven years after the 60,000-kw Shannon station went on the line, power sales had reached 220 million kwhr. To meet the demand, new developments were begun on the Rivers Liffey and Erne. Peat-burning stations were built on the extensive bogs.

World War II delayed these projects, and power had to be rationed. But by the end of the war almost every municipality was connected to the national network, and in 1947 a rural electrification program was begun. Additional coal, oil, and peat-burning stations are underway.

POLLAPHUCA, or "Pool of the Fairies" Hydro Plant is one of three with total capacity of 38 Mw on the River Liffey near Dublin

The board has been out of the red since 1932 and today is carrying the largest capital investment of any single business organization in Ireland.

Power on 'Best Issue' List (continued)

tion as "milking the rest of the country."

By last Monday Eisenhower was ready to give his own detailed views on power development and reclamation projects. In Seattle, he declared:

- Power development in the Northwest must and will go forward. In this continuing program, the federal government will play its full part.
- This can be done through cooperative efforts of local, state, and the federal governments, rather than by the federal government alone.
- By using this cooperative approach, local people can avoid giving the federal government a perpetual lien or mortgage on the area.

This approach to power development and reclamation projects did not seem far from that voiced by Democratic Candidate Stevenson in Seattle in early September (EW, Sept. 15, p 7). But this Eisenhower program was in sharp contrast to that Truman had expounded the preceding week.

Said Harry . . . Truman had boasted, "In 20 years, under federal programs carried out by Democratic administrations, water has been brought to three and one-half million acres of rich Western farm land." In his series of Western speeches, he credited the Democratic Party almost exclusively with the power and reclamation projects that have been built in the West. Republicans in Congress, he implied, have opposed and hindered such projects every step of the way.

Reading his own version of the Congressional record, the President hammered away at Republican economy moves which he said had hampered public works in the West.

Said Ike . . . In his Seattle speech, Eisenhower replied:

"I believe you know, too, that the much maligned (Republican) Eightieth Congress of four years ago appropriated more money for Western projects than any previous Congress in history." He also called attention to Hoover Dam, authorized by the Republicans in 1928, and the Reclamation Act which was written by the Republicans under Pres Theodore Roosevelt.

Bearing down hard on his time-tried "special interest" accusations, Truman told a Redding, Calif., audience:

"The power companies own a great deal of stock in the Republican party —and that party's policies on public power will be the policies these private interests want—not what you want."

Eisenhower took another view. He told his Seattle listeners:

"But you folks know that the greatest special privilege, the greatest lobby, the greatest concentration of power ever known is now operating full speed ahead right down on the Potomac to perpetuate itself in power.

"The whole-hog federal government believes that it must own and control just as many of our resources as it can lay its hands on—by fair means or foul. The people must not control them, the states must not control them, the federal government must go whole-hog."

Committed . . . Whether the Democratic candidate agreed or not, it was apparent last week that President Truman was commiting him to the same attitudes on public power policy that President Truman has followed. Eisenhower had chosen to do battle with Truman, but his salvos were bound to strike Stevenson at the same time.

As the week began, Stevenson made only two references to the power issue. In a farm speech at Fort Dodge, Iowa, he accused Republicans in Congress of voting to reduce Rural Electrification Administration funds.

At St. Paul, Stevenson called Senators who would become committee chairman in event of a Republican sweep a "murderers' row". He listed in fifth position Sen Harry P. Cain of Washington, who would be chairman of the Senate Public Works Committee. He described the Washington lawmaker as "champion of the private power lobby, the first Senator from his state in 20 years to oppose low-cost public power projects."

Swearing in the Man to Watch at Depa

James F. Davenport (right), the man in line for the administrator's job at Defense Electric Power Administration, was sworn in recently as deputy administrator by Chief Clerk Floyd E. Dotson of the Department of Interior. Under Secretary Vernon D. Northrup looked on.

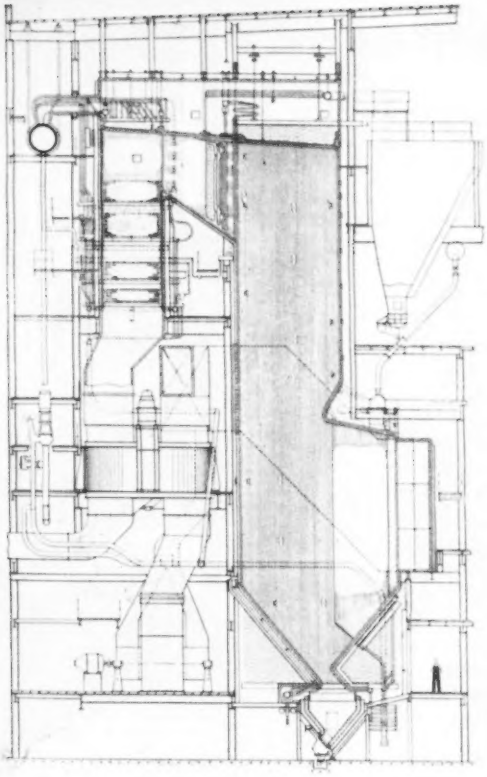
Davenport, vice president of Southern California Edison Co, fills a position left vacant when James F. Fairman moved up to become Depa administrator in July 1951. Edward Jason Dryer retains his position as the other Depa deputy, representing public power in the top command.

The West Coast utility executive received his B.S. from Harvard in 1926, and since then has been with Southern California Edison.

OAK CREEK STATION

Wisconsin Electric Power Company

C-E controlled circulation boilers



The C-E Unit shown above is one of two similar units now in process of fabrication for the Oak Creek Power Plant of the Wisconsin Electric Power Company at Milwaukee, Wisconsin.

Each of these units is designed to serve a 120,000 kw turbine generator. One unit is designed for a throttle pressure of 1575 psi and the other for 1800 psi. Both are designed for a primary steam temperature of 1000 F, reheated to 1000 F.

These units are of the controlled-radiant type. Reheater surface is located in the side furnace walls and primary superheater surface forms the rear furnace wall. The secondary superheater surface is located in the first pass at the furnace outlet. Economizer surface is in the last pass of the boiler and regenerative type air heaters follow the economizer surface.

These units will be fired with pulverized coal employing the storage system with C-E Raymond Roller Mills, Type R Feeders and Type L (Vertical) Burners.

C-E

COMBUSTION ENGINEERING—SUPERHEATER, INC.

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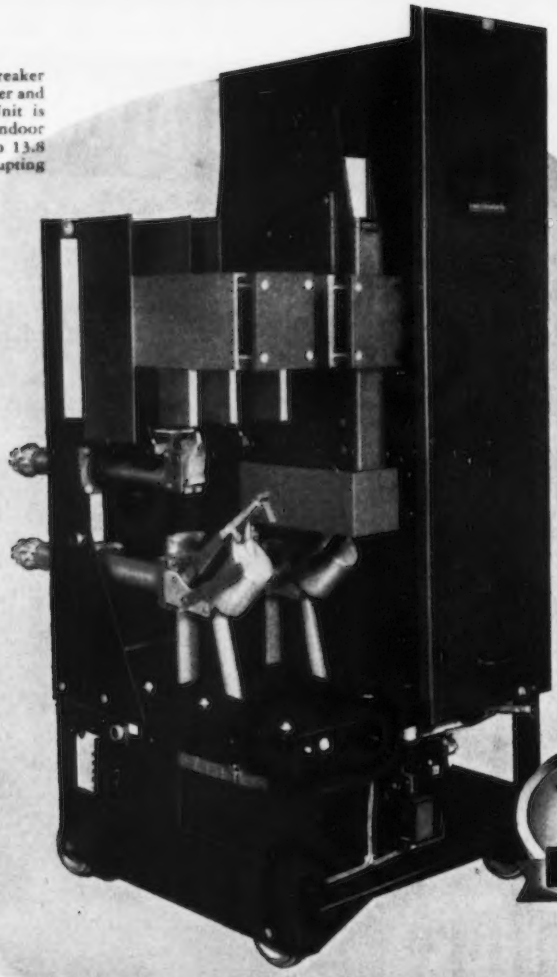
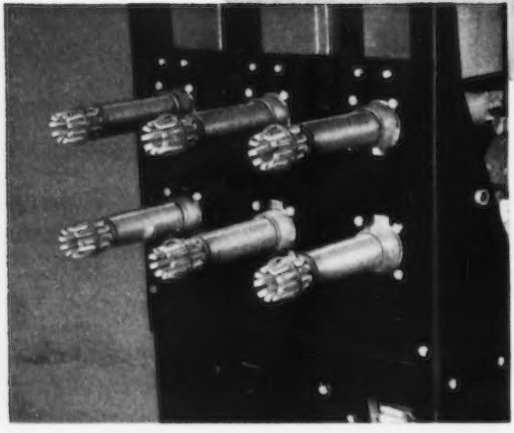
ALL TYPES OF BOILERS, FURNACES, PULVERIZED FUEL SYSTEMS AND STOKERS; ALSO SUPERHEATERS, ECONOMIZERS AND AIR HEATERS

150-DH-250 Air Circuit Breaker with half of interphase barrier and one arc chute removed. Unit is horizontal drawout—for indoor and outdoor service 4.16 to 13.8 kv—150 to 500-mva interrupting rating.





Positive contact is obtained on primary disconnects by individual flat springs and heavily silvered, self-aligning, finger-like segments. Segments on breaker are easy to inspect.

Horizontal-drawout feature makes it easy to place breaker into operation. Two-surface wheels which ride on track in stationary structure assure perfect alignment for engaging contacts.

The DH De-ion® breaker design pays performance benefits

IN EVERY PHASE OF METAL-CLAD SWITCHGEAR OPERATION!

Here's how the Westinghouse DH Air Circuit Breaker for Metal-Clad Switchgear gives you the kind of performance you want . . .

Fast, positive, arc interruption . . . DH Air Circuit Breakers employ the De-ion® principle of arc interruption—the most efficient method of arc extinction in use today. The De-ion principle is a Westinghouse exclusive! The true ceramic material used in constructing the arc chutes provides unusually high resistance to heat shock.

Simple, effortless operation . . . DH Breakers are the horizontal-drawout type. No lowering or lifting is necessary. There's no complicated mechanism to require frequent inspection or maintenance. Breakers are drawn straight out from disconnected position . . . require only a few easy turns of a crank to move into operating position.

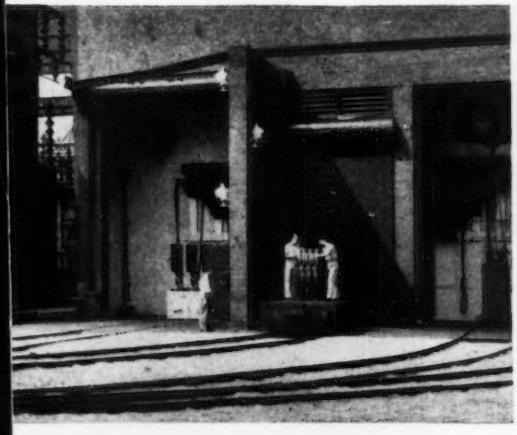
Easy inspection and maintenance . . . Breaker interphase barriers can be removed by simply loosening holding bolts. Arc chute removal—just as simple—exposes contacts at an accessible and convenient working height for quick inspection and maintenance. High-pressure, finger segments located on breaker primary disconnects further simplify maintenance.

"Long-life" construction . . . All breaker elements are secured to a rigid, all-welded steel frame. Hardened, stainless steel is used at major wearing points . . . silver-tungsten arcing contacts have high resistance to arc burning.

Perfect alignment for interchangeability . . . The use of a master breaker and a master stationary structure in manufacturing holds drawout units and stationary structures to close dimensional tolerances. Result is perfect alignment . . . easy interchangeability.

Proved operation . . . The DH Air Circuit Breaker design has been extensively tested in the Westinghouse High Power Laboratory. The results of these tests are verified by many years of satisfactory field performance on thousands of breakers.

For complete information on Westinghouse Metal-Clad Switchgear write for Booklet B-5306. Address: Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-60795



A DH Air Circuit Breaker is brought into a test cell in the Westinghouse High Power Laboratory to verify new design feature under short-circuit conditions.

See "Electrical Proving Ground"

. . . the dramatic story of the Westinghouse High Power Laboratory in sound and color motion picture. For details see your Westinghouse representative, or write: Westinghouse Film Division, Box 868, Pittsburgh 30, Pennsylvania.

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METAL-CLAD SWITCHGEAR

NO. 7 IN A SERIES

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"How can we purchase transformer bushings more economically?"

here's the answer:

Specify standard Pinco Bushings. The two Bushings shown here, are typical of the many standard types available in the Pinco line.

If you are a manufacturer of equipment requiring the use of low voltage, high current bushings, chances are you'll find just what you need in Pinco's line of standard Bushings. These Bushings, made by the famous Pinco wet plastic porcelain process are equipped with standard terminals (or terminals to your specifications) and are furnished completely assembled with necessary hardware ready for mounting on transformers or other applicable equipment.

Refer to Pinco catalog No. 49 for complete specifications on standard bushings . . . or contact us or the nearest Joslyn office.

IF YOU REQUIRE "CUSTOM-MADE" PORCELAIN . . . we are equipped to make it to your exact specifications. Quotations on Pinco special porcelain are made from your blue print or sketch. And if you wish, our engineering department will assist you in designing the porcelain you require.

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Ampere Rating . . . 400 Amp.
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BPA to Help Local Projects

Assistant administrator uses dedication of Box Canyon Dam in Washington to spell out plan for small plants

Bonneville Power Administration used the ceremony signalling the start of construction on the Pend Oreille PUD's $15 million Box Canyon Dam near Ione, Wash., to spell out a program for helping in the construction of small power projects by either private or public agencies.

John D. Davis, assistant BPA administrator, told residents of the area that BPA considers this project an object illustration of how home rule and local initiative can complement and relieve the federal government of a part of its financial burden while at the same time providing substantial benefits both to the local utility and to the consumers in the whole region.

"This is in part an answer," he said, "to a question which has been discussed many times in the Northwest as to who should do the job of providing our electric energy supply.

"The federal government of necessity must continue its activity in connection with the big multiple-purpose projects for flood control, irrigation, navigation, and power for it has an obligation to the people generally in the Pacific Northwest.

"Our local agencies, private and public, should be developing the lesser, feasible power projects within their financial ability, even though those projects may at the time of construction exceed the immediate future requirements of the utility."

Ass'stance . . . Bonneville hopes "in the near future," said Davis, "to be able to take steps which will result in more direct assistance to local utilities in locating and financing projects similar to this one. There are several hundred prospective small power sites in this region which are as yet undeveloped. They range in size from 2,000 to 100,000 kw. I am sure that many of these are feasible, both from an engineering and financial standpoint. If some way can be found to do the preliminary work necessary to their identification, we hope to find a way to take this necessary first step."

Bonneville also proposes to recommend to the next Congress that the Bonneville Act be amended so that BPA either may buy power directly on long-term contracts from locally built and owned projects "or to serve as their agent in the marketing of power," Davis declared.

"We recognize that the practical problem a local utility faces in building these smaller projects lies in the matter of marketing the power from them to insure the 'bankability' of the project and at the same time permitting the local utility to have access to the power from the project to meet its own requirements as they may arise in the future. By this method not only can the financial feasibility of a project be assured but also the way is opened for exercise of local initiative and incentive."

The Pend Oreille dam is believed to be the first complete dam to be financed by any PUD in the state, although the Chelan PUD is building an extension to the Rock Island Dam of the Puget Sound Power & Light Co.

POWER BRIEFS

● Electricity will be rationed severely in Czechoslovakia next winter, Communist paper Rude Pravo reported recently. The cuts are necessary because economy measures have failed.

● Seven electric utility companies in Brazil have been allotted $41.1 million of a $56.7 million Brazilian loan from the Export-Import Bank of Washington. The credit will be used to buy equipment, materials and services in the United States needed for a power expansion program which will increase capacity of the seven firms 90% by 1955. Total cost of the program is estimated at $98 million.

● Electricity was good for laughs a hundred years ago. M. D. Hooven, Newark, N. J., electrical engineer told a meeting held during the recent Centennial of Engineering about a machine used to spark up parties in the 1850's. The machine generated static electricity. A young lady would take hold of a chain connected with the prime conductor. Then, if a gentleman attempted to kiss the lady, he would be deterred to some extent by sparks flying in his face.

● Edison Electric Institute has released a 28-page booklet to assist electric company executives in the home lighting market. The booklet, "The Home Lighting Story of Company X," is a case study of a typical electric company's residential lighting promotion based on actual experience of 18 small and large utilities.

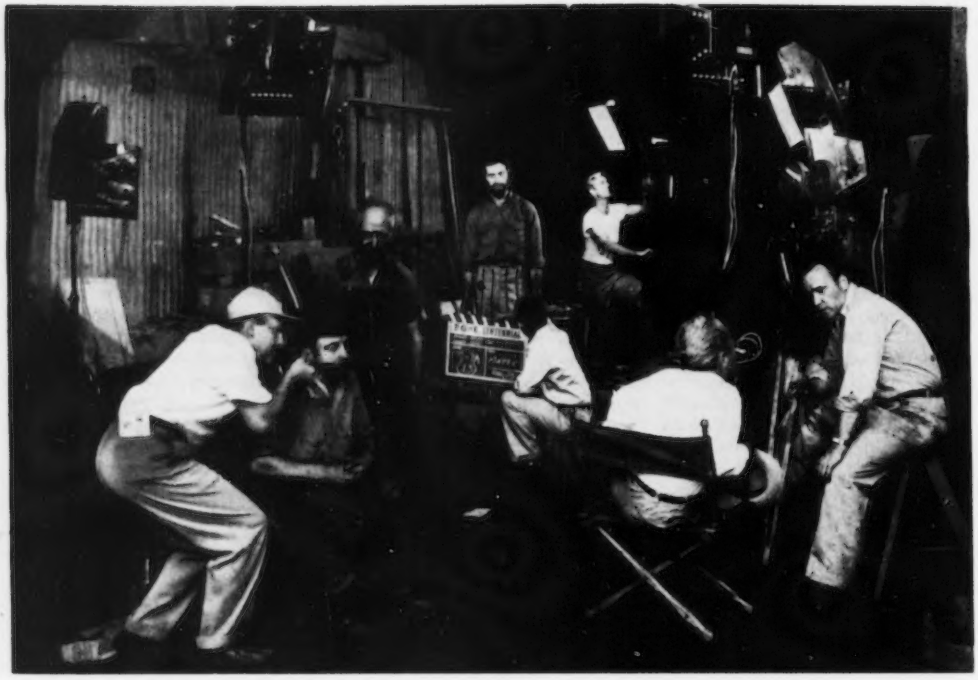
● American engineers have completed initial surveys on a proposed $6-million hydroelectric installation near Palin in Guatemala. The surveys were made at the request of the Guatemalan government. It is assumed that the proposed installation would be government-operated. Empresa Electrica de Guatemala, subsidiary of American Foreign Power Corp, earlier proposed a 16,000 kw hydro development at Palin but the government has taken no action on the proposal.

● Union Electric Co of Missouri tried out a new fuel in its furnaces recently and found it very efficient. The company burned 2,200 lb of mustard seed from Holland condemned by the Department of Agriculture. The seed, which the company had agreed to dispose of, produced 20% more heat than the same amount of coal. Coal operators need have no worry. Uncondemned mustard seed costs 90¢ a lb.

● New York State Electric & Gas Corp will build a 500,000-kw steam plant in the Ithaca area. First unit at the plant will have a capacity of 135,000 kw and will be the largest single generating unit in the company's system. The plant will be located on a 100-acre site 15 miles north of Ithaca at Heddens near Lake Ridge on the east shore of Cayuga Lake. No date has been set for beginning construction work.

One Mill, Not Seven

In a story published Aug. 25 on Page 80, it was reported that Consumers Public Power District, Columbus, Neb., would wheel Missouri Basin power for the Bureau of Reclamation for 7 mills per kwhr. This was a typographical error. Reclamation will pay Consumers one mill per kwhr, plus six per cent for line losses.



SET FOR BIG SCENE in "A Century of Light," PG&E's color movie, represented the foundry of young Peter Donahue, who on Aug. 31, 1852, organized San Francisco Gas Co to bring first gas to the West Coast. This and Rock Creek Water Co were earliest of utility's predecessors

Color Movie and 10-Part Stage Show Play to Thousands as . . . Pacific G&E Centennial

100 Years After 1st Lamp Was Lighted

Company officials cut the Centennial cake at the San Francisco party that set the celebration rolling. Recipe was especially concocted for the celebration by Marguerite Fenner, PG&E home economics director

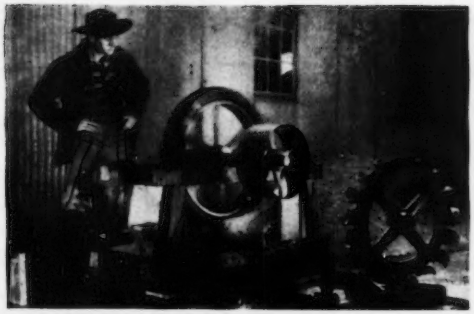
Pacific Gas & Electric Co—celebrating its 100th anniversary this year—couldn't invite all its 18,500 employees to one big birthday party. Not and still run a power system. So it decided to take the party to the employees.

It's now in the middle of a month-long "road show" celebration for PG&E employees and their families, playing 17 stops from Eureka to Bakersfield, Cal.

The celebration kicked off with a 700-guest "premier" party at San Francisco's historic Palace Hotel. Representatives of all phases of the company's activities dined and saw the new "A Century of Light," a color movie of PG&E history, and a ten-part skit vignetting as many decades of utility pioneering in California.

The movie, filmed especially for PG&E, flashes back to 1852 to catch Peter Donahue, a young foundryman, in the act of setting up the San Francisco Gas Co, among the first predecessors of the sprawling utility. It slides up the chronology to 1878 to watch Lester Pelton develop the principle of the high-speed water wheel, later put to use in hydro generation. Then it traces the company's growth through mergers that made it one of the largest.

The 90-minute road show includes the movie, the skits and a sound film of an anniversary message by Pres. James B. Black. Final event of each "one-night stand" is an open house, at which each guest gets a small centennial cake.

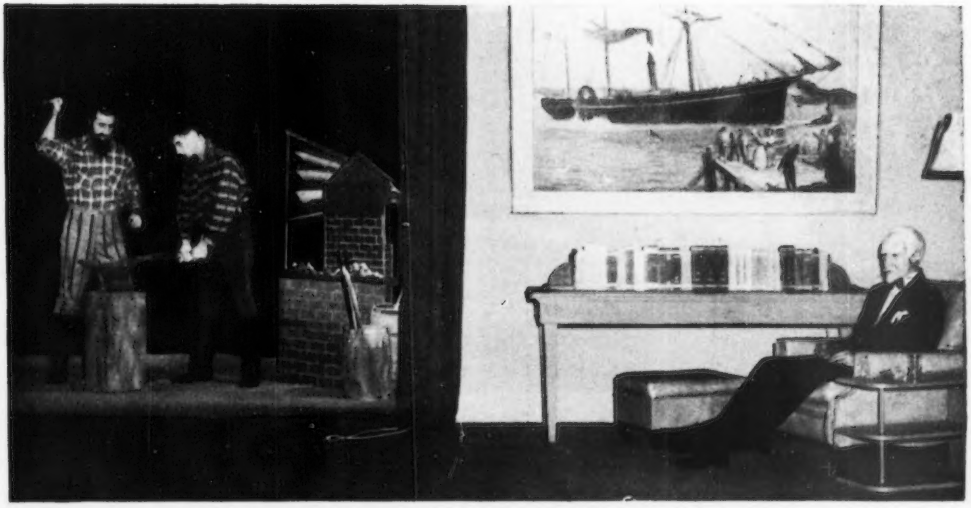


MILLWRIGHT Lester Pelton, the movie shows, perfected a high speed water wheel that proved key to hydro development of Sierra

LAMPLIGHTER came on the scene with the first lighting of San Francisco streets in February, 1854. That year Donahue's company

installed 84 gas lamps and hired a man to operate them. Scene from the movie took props (above) and a latter-day product: bottle gas

Celebration Takes to the Road



COMPANY ACTORS staged 10-part skit. Old-timer Eugene DeSabla (played by Ray William Siden) "tells" utility's story while browsing through "PG&E of California", a new book by the company's Charles M. Coleman. Scenes at left and "painting" change as history unfolds

Ohio Valley Electric Formed

Fifteen-company group plans to supply 2.2 million kw for new Atomic Energy Commission plant near Portsmouth, Ohio

The 15-company Ohio Valley Electric Corp has filed incorporation papers at Columbus, and the same group has also filed at Indianapolis for a subsidiary, Indiana-Kentucky Electric Corp.

Both companies last week were scheduled to sign a contract with Atomic Energy Commission to supply power to its new atomic center near Portsmouth, Ohio.

The group is now headed by Philip Sporn, president of American Gas & Electric Co. Directors have been elected for both Ohio Valley and its subsidiary. Officers will be chosen later.

Preliminary announcements have indicated that two steam plants with a total capacity of 2.2-million kw will be erected to take care of AEC's demand for 1.8-million kw. Sites of the plants will not be disclosed until after the contract has been signed with AEC.

The 15 companies (actually only 10 systems) are:

Columbus & Southern Ohio Electric Co., Cincinnati Gas & Electric Co, West Penn Power Co, Potomac Edison Co, Monongahela Power Co, Ohio Edison Co, Pennsylvania Power Co, Toledo Edison Co, Dayton Power & Light Co, Ohio Power Co, Appalachian Electric Power Co, Indiana & Michigan Electric Co, Louisville Gas & Electric Co, Kentucky Utilities Co, and Southern Indiana Gas & Electric Co.

Guatemala to Construct Proposed Hydro Plants

Guatemala City (McGraw-Hill World News)—Minister of Communications and Public Works Col Carlos H. Aldana Sandoval stated flatly to McGraw-Hill World News recently that various hydroelectric power projects now under consideration here would be constructed and operated by the government.

The minister was specific in his statement that new projects will not be handled by American Foreign Power Co. subsidiary here, the Empresa Electrica de Guatemala, South America.

The American Foreign Power subsidiary, which presently supplies the majority of the power in the republic, had presented a project over a year ago to the government for expansion of present power producing facilities and the construction of at least one new hydro plant.

Minister Aldana stated that a preliminary survey has already been made of a proposed project for a hydro plant near Guatemala City by Westinghouse Electric Corp and that he has had several conferences with P. H. Cross, zone director of Westinghouse in the Caribbean area, on the entire subject.

The official made it clear that it is not the intention of the government to interfere with the operations of Empresa Electrica here but that any expansion of power producing facilities would be done by the government.

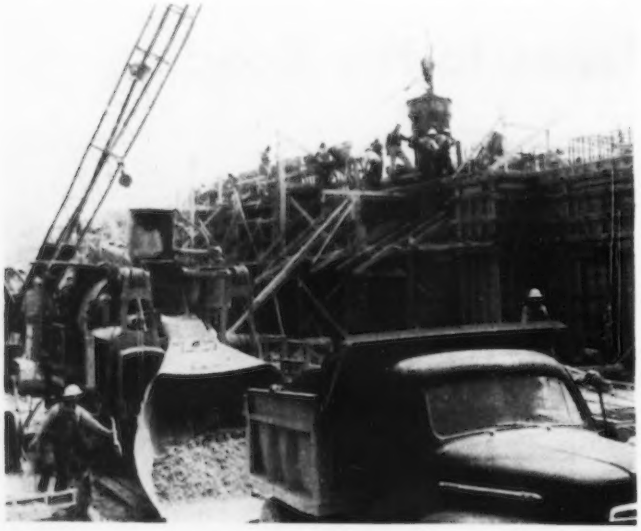
Republican Congressman Opposes Wilson's Plan

Rep Russell V. Mack of Hoquiam, Wash., a Republican who generally is considered one of the more conservative legislators from the Pacific Northwest, has taken sharp exception to the suggestion of Charles E. Wilson, former president of General Electric Co and director of Defense Mobilization, that the federal government return publicly owned and operated power dams to private firms.

Speaking before the Northwest Rivers and Harbors Congress at Raymond, Wash., Mack, who is campaigning for re-election, labeled Wilson's proposal as "unrealistic and against public policy."

He asserted that power dams and lines "are paying for themselves" and "will continue to earn revenue for the federal treasury" after they are paid for, with interest, in 50 years.

Predicting that Columbia River power development will make Washington and Oregon the fastest growing section of the nation in the next ten to 20 years, Mack declared that the development should be "for the benefit and profit of all the people, and not for the selfish interests of a few private investors."



Romans at Work on a Georgia Plant

Citizens of Rome, Ga., that is. They are building the 300,000-kw Plant Hammond of Georgia Power Co, on the Coosa River near Rome. Picture shows mixing and pouring of concrete in forms for south wall of condenser room. First unit is scheduled to go on the line a year from now.

SAVE 75% OF YOUR INSTALLATION COST

Use

KEARNEY GROUND ROD DRIVER

GROUND rod driving, formerly a tedious job for two men is now safe, easy routine for one man. With the new Kearney Ground Rod Driver, *one* man can drive an 8 foot rod in *less than half the time* required by *two* men using ordinary methods.

EASY TO OPERATE

Any length rod is inserted down through the hollow handle and is gripped close to the ground by a heavy chuck. Downward blows of the handle strike the chuck and drive the rod quickly, eliminating peened-over rod ends. The workman remains in a natural standing position at all times; the chuck is moved up on the rod automatically as it is driven. Weight of the tool provides most of the driving force. Interchangeable chucks are available for all standard size rods.

SALVAGE GROUND RODS

Save money by salvaging old ground rods. Merely reverse chuck and use same action described above for driving. Removing rods is just as easy and fast as driving. Write today for catalog sheets and prices to Dept. 12.

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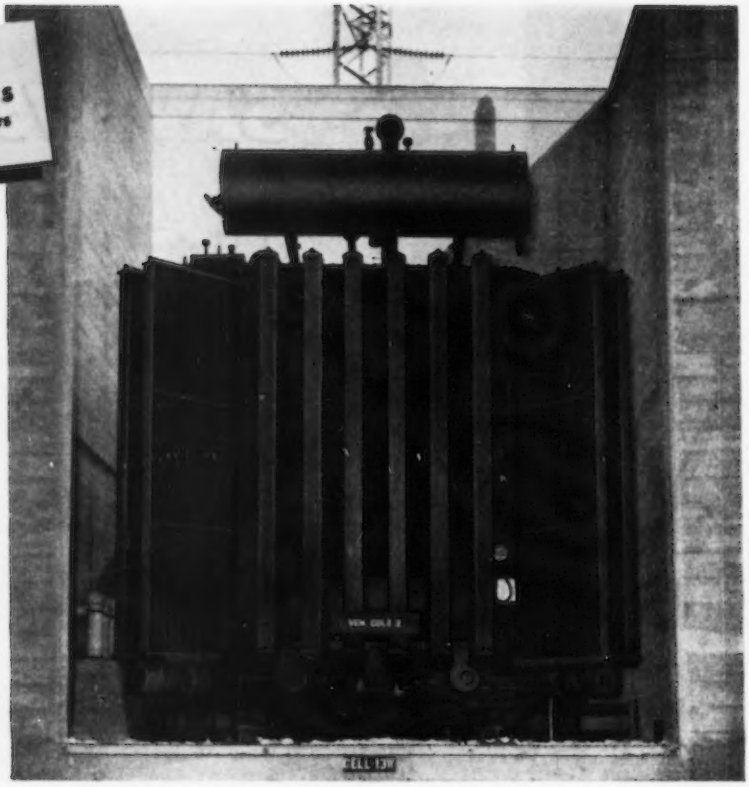

...to fulfill an obligation

Vast supplies of electric energy are ready to work for you—at any hour—at the touch of a switch. This fact proves how well the electric utilities have fulfilled their self-imposed obligation that there must always be power. Their job is tough, because the ever-increasing demand for electricity (a possible 400,000,000,000 kilowatt-hours this year) taxes facilities to the utmost.

That's why the Union Electric Company of Missouri, for example, uses only the most dependable equipment—like this Wagner Power Transformer—one of many installed at their Venice, Illinois plant.

Wagner Power Transformers have been serving the power industry dependably for over sixty years. Service records from the field, dating back to the early days, prove their ability to give continuous service over unusually long periods of time. They are compact in design and have inherent strength and stability. They have sufficient capacity to not only carry their normal load, but to be able to handle overloads—again and again—whenever emergencies arise.

Wagner engineers are qualified to specify the correct transformer for *your* requirements as well. Consult the nearest of our 32 branch offices or write to

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AUTOMOTIVE BRAKE SYSTEMS—AIR AND HYDRAULIC

W152-7

Tacoma Voters to Decide . . .

. . . on a new city charter that would put City Light and other utilities under board independent of the city council

Tacoma, Wash., will vote Nov. 4 on a new city charter which provides that City Light and other municipal utilities be operated by a board virtually independent of the city council. The charter was assured a place on the ballot when the Council, prodded by public opinion, adopted an ordinance to that effect.

The utilities presently are directed by a commissioner of public utilities, elected as a member of the council by the people.

Five-Man Board . . . The proposed charter provides that the public utility board will be composed of five members, appointed by the mayor and confirmed by the council, for five-year terms. Members of the board may be removed only for cause by the mayor and council and "only after charges have been filed and published and the member has been given a reasonable opportunity to defend himself in an open public hearing before the council." Only compensation will consist of "reimbursement for expenses incurred in carrying out their official duties, other than those incident to attending board meetings held within the city."

The board will have "full power to construct, condemn and purchase, acquire, add to, maintain and operate the electric, water and belt line railway utility systems," although "all matters relating to system expansion, the incurring of indebtedness, and the fixing of rates and charges" shall be subject to approval by the council.

The council is directed, at intervals not exceeding ten years, to order a general management survey.

Appointed Director . . . The board is empowered to appoint a director of utilities for an indefinite period, subject to removal, who in turn will appoint a superintendent for each utility system, subject to confirmation by the board.

The charter provides for a gross earnings tax maximum figure of 8% on utilities, an increase of one-half of 1% over the present tax, but below the 10% originally proposed. Other provisions call for the public sale of revenue bonds by sealed bids and a sharing by the utility and the general fund of the expenses of street improvements made necessary by readjustment of any utility.

C. A. Erdahl, commissioner of public utilities, had declared the proposed 10% tax would mean a raise in consumer electric power rates.

Departments other than utilities would come under the direction of a city manager to be appointed by the council.

Depa Revises 3 Forms for Major Plant Additions

In a continuing effort to simplify Controlled Material Program bookkeeping, Defense Electric Power Administration has revised three of its key forms covering allotments for major plant additions.

Depa feels confident that the new forms—DEPA-7, DEPA-7R, and DEPA-7S—will be easier to process both by electric utilities and by Depa.

Revised form DEPA-7 is used by Depa to authorize construction and also to issue allotments and preference rating for an individual major plant addition.

Revised form DEPA-7R is to be used by utilities in returning the portion of their material allotments which remains unused 60 days after the allotments are issued.

Form DEPA-7S to be used instead of DEPA-6 in returning unused allotments at any time it appears the allotment will not be used during the quarter for which it was issued.

FPC Makes Available Revised Power Maps

Federal Power Commission has revised its map series depicting the nation's principal electric utility generating stations and transmission lines. The series, which is revised as of June 30, 1951, includes 11 regional maps and six enlarged scale maps of congested areas.

The 11 regional maps show transmission lines of 22 kv and above and generating stations of 1,000 kw and above. Industrial stations of this capacity are shown when interconnected with an electric utility. Six supplementary sheets show details of congested areas in Boston, New York, Philadelphia, New Jersey, Rhode Island, and cities in the Southeastern and Pacific Southwest regions.

The map series along with a plant and ownership list giving plant name, type, capacity, and location may be purchased from Publications Division, FPC, Washington 25, D. C. for $5. Individual maps are 50¢ each.

Approves Portion of Line in San Fernando Valley

Los Angeles City Council has passed by a 13-2 vote an ordinance giving the go ahead to 7.6 mile of the Department of Water and Power's controversial 21 mile transmission line in San Fernando Valley.

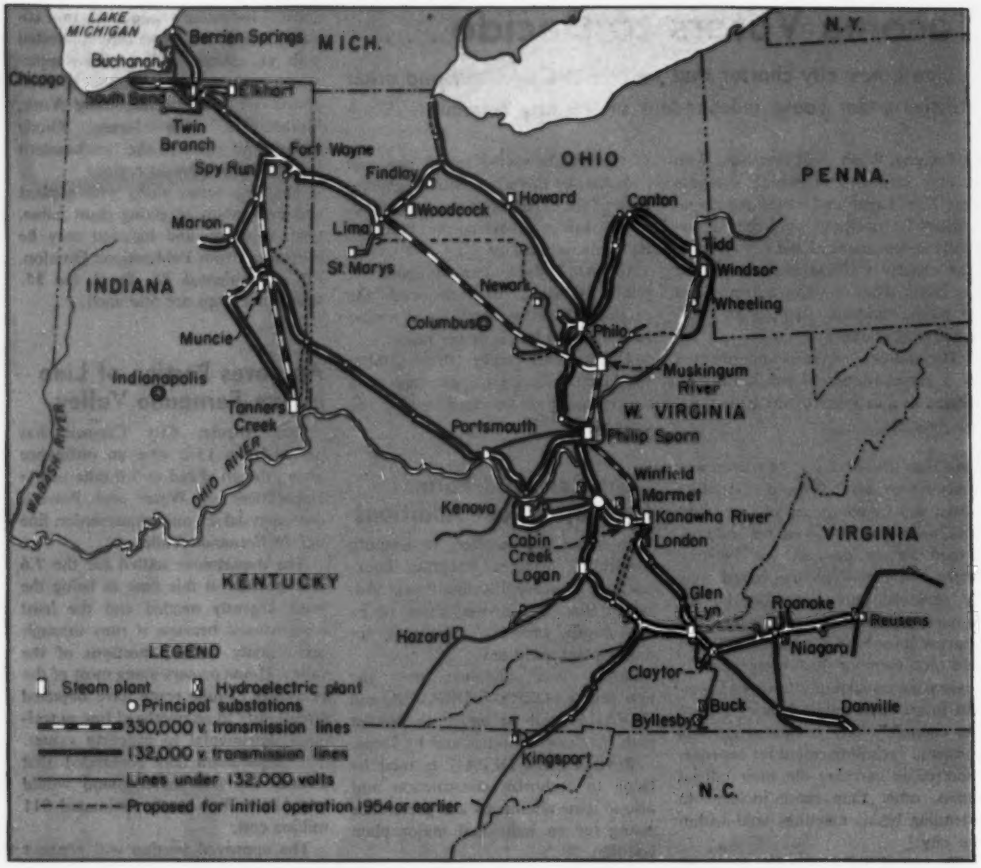
The department settled for the 7.6 mile portion at this time as being the most urgently needed and the least controversial because it runs through less heavily built-up portions of the valley. Home owners along most of the proposed 21-mile route have objected strenuously to an overhead line as seriously detrimental to property values. The department has contended that putting the line underground would add $18 million to the estimated $11 million cost.

The approved portion will connect receiving and distribution Station E in North Hollywood, valley terminus of present lines from Owens Gorge and Hoover Dam, with Station J, near Northridge, and the valley steam plant, both under construction. The department feels it imperative that station J be in partial operation by the time of peak winter loads. December is now the target date.

The department feels that it will be at least a year before it will become necessary to start work on the rest of the line and hopes by that time a satisfactory solution can be reached on the route.

California Site Leased

Mayor of Redondo Beach recently signed a lease on two blocks of beach and tidelands for proposed addition to Southern California Edison Co's power plant there. The addition will cost $44 million.



PROPOSED 330 KV NETWORK of AG&E. Section between Philip Sporn and Kanawha River Plants has been erected and is energized at 132 kv

AG&E Builds Its 330-Kv Network

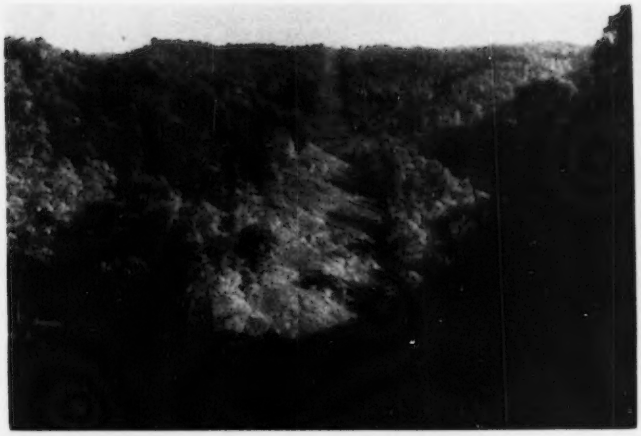
First 63-mile section, now energized at 132 kv, will go on scheduled voltage in 1953. Extensive research at Brilliant preceded construction

The first leg of the 330-kv transmission network of the American Gas & Electric Co is now operating at 132 kv. Late next year the company intends to raise the voltage to the scheduled 330 kv.

The line extends 63 miles from the 600,000-kw Philip Sporn Plant to the 400,000-kw Kanawha River Plant (See map). The Appalachian Electric Power Co, an AG&E operating company, built the line. Other portions of the 330-kv network are now being erected by the Ohio Power Co and Indiana & Michigan Electric Co. When completed the AG&E interconnected transmission system will be one of the longest and heaviest in the country.

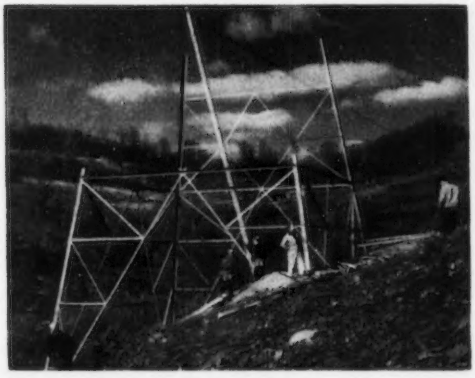
The 330-kv network will tie AG&E power sources into strategic points on the existing 132-kv network and is expected to handle load growth for many years to come. For average AG&E conditions each 330-kv circuit will transmit up to 400,000 kw.

The voltage chosen and the design of the equipment were based on the results of extensive research carried out at the Brilliant, Ohio, high-voltage field-research laboratory. This research was sponsored jointly by AG&E operating companies and a group of cooperating manufacturers. Results of the research were made available to the entire electrical industry through papers presented at meetings of the American Institute of Electrical Engineers during 1950-51 and in institute proceedings.

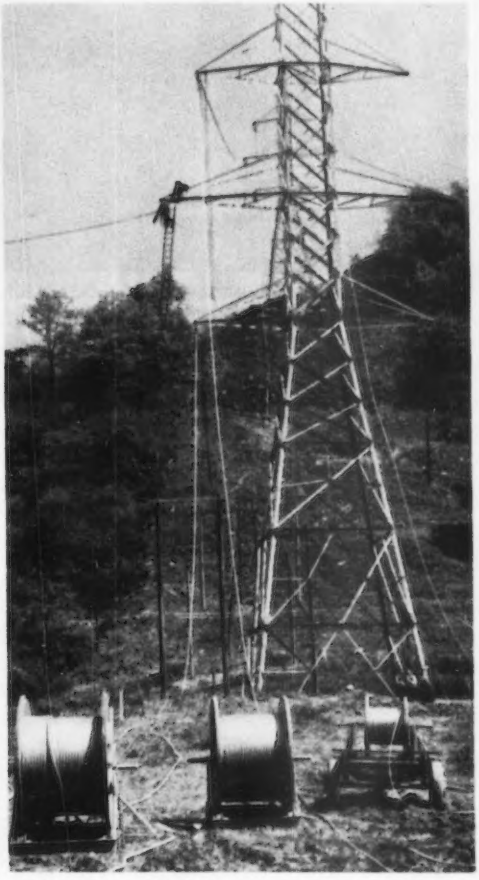


RIGHT-OF-WAY prepared for the construction crews. The 150-ft. path runs across various types of terrain. This section, through forest land, was cleared by bulldozers and by tractors

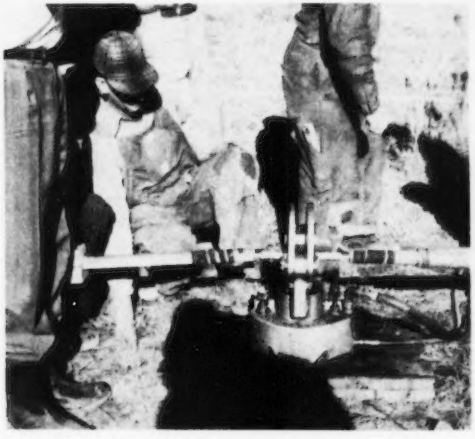
PLACING STEEL GRILLING for tower footing. Earth backfill (no concrete) was used



ON THE SIDE OF A HILL a construction crew erects the bottom section of a tower. Steel extensions reduced excavation work, cut cost

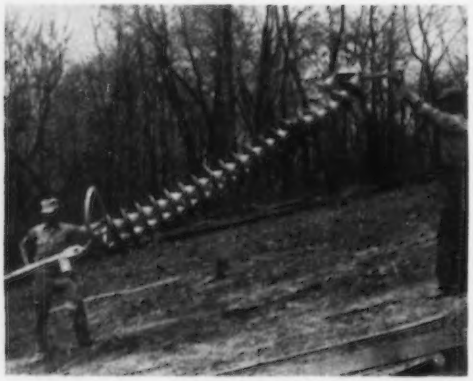


STRINGING 1.6-in. ACSR CABLE was done from cradle-mounted reels. This 1,275,000-circ mil cable has a tensile strength of 41,970 psi

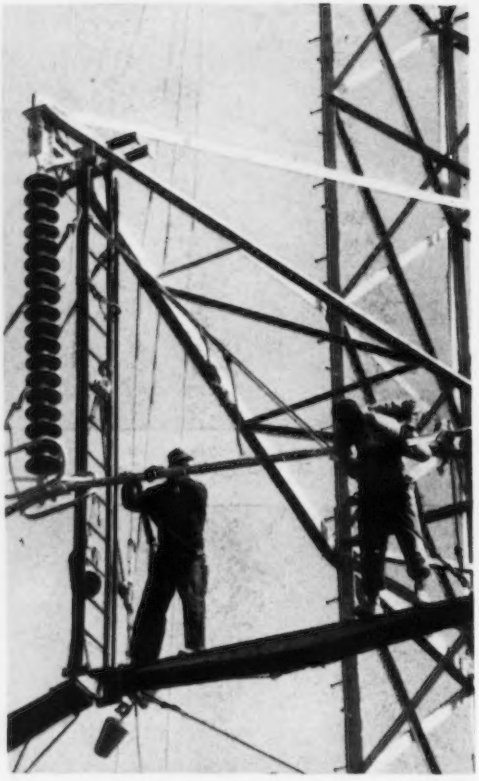


HOW LINE WAS SPLICED is shown in this closeup. A hydraulic press was used to compress a sleeve. Care was taken to get perfect splices

FOLLOW WORK ON PAGE 24

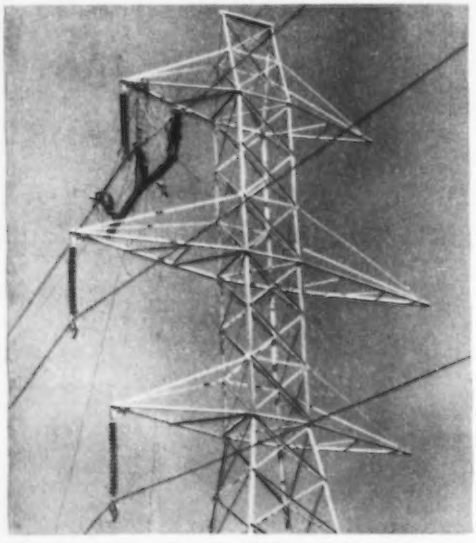


HOISTING DEAD-END ASSEMBLY with double strings of 19 units each, yoke and corona shield. The strings consist of 19 units each

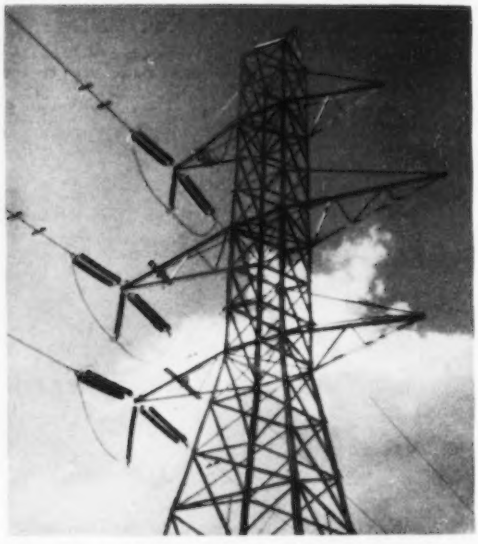


WORKMEN ATTACH VIBRATION DAMPERS at the end of armor rods. Dampers serve as corona shields for outer ends of armor rods

TWISTING ARMOR RODS on a cable high above the ground took more than skill. It took courage and close attention to all safety practices



FROM A DISTANCE here is how a crew at work looked. Platform and ladder were used in attaching clamps, shield rings, and similar items



ONE CIRCUIT INSTALLED. Notice corona shields and vibration dampers. Temporarily placed on left crossarms are vibration recorders

L-M's NEW PID
5 KV 100 ampere
intermediate duty cutout.
Reflective markings easily seen from the ground identify the door and cutout. Doors are easily removed and replaced with a switch stick, for safety.
Cutout rating and date of manufacture sandblasted into side of box for permanent identification
5000 V
100 A.
LM-52

L-M's New PID Cutout Provides Up To 166% Higher Interrupting Capacity At 20% Lower Cost

Costs 20% less than standard 100 ampere cutout; interrupting capacity 166% higher at 2.5 kv (8000 amperes), 66% higher at 5 kv (5000 amperes). Box will accept all standard 50 ampere doors, thus permitting one box to be used for both 50 and 100 ampere service. Also takes 200 ampere switch blade door.

L-M's PID Cutout is designed to provide a 100 ampere intermediate duty cutout at an appreciable saving over standard 100 ampere cutouts. Boxes are smaller and more compact than standard 100 ampere cutouts—they are the same size as a 50 ampere cutout but terminals and contacts are heavier. Thus the cutout will take any of L-M's 50 ampere doors, as well as the 100 ampere intermediate duty and 200 ampere switch blade door.

The non-disconnecting door provides positive link ejection and circuit interruption even on low current faults.

Both cutout and switch blade doors can be removed and replaced with standard switch sticks, providing additional safety.

Cutout and disconnect switch doors are easily identified from the ground by the reflecting markings on the doors. Rating and date of manufacture are sandblasted into sides of box for permanent identification.

Get Details on L-M Fuse Cutouts

L-M offers complete families of open and closed type cutouts to meet a wide range of requirements. Interchangeable doors offer low first cost and economical capacity increases as loads are increased. For complete information ask the L-M Field Engineer or write for bulletins. Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

LINE MATERIAL
fuse cutouts

101

Complete Coordinated Equipment for Distribution Today

LET'S LOOK AT THE FACTS

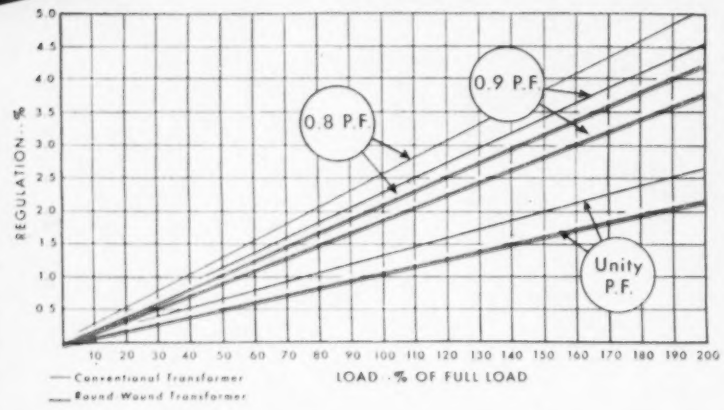


FIGURE 1 — Regulation of a standard 50 kva 2400—120/240 volt Round-Wound transformer compared with that of a conventional transformer, showing the effect of load and power factor on regulation.

How L-M Round-Wound Design Improves Transformer Regulation

A brief discussion of the design factors affecting regulation, and the differences in the design of Round-Wound transformers that result in better regulation at all power factors.

By **JAMES G. EVERHART**
Chief Engineer,
Transformer Division,
Line Material Company

Voltage regulation, always an important factor for consideration, has in recent years received even more attention. Higher average secondary voltage at full load means brighter lights, less lamp flicker, and improved operation of the growing number of appliances. It is particularly important in the operation of television receivers, where low voltage produces far greater effect than is generally known by the public.

Higher voltage produces greater revenue to the utility company and, in these days of extremely close margins or actual operating losses, utility companies cannot afford to neglect any source of potential revenue.

State power commissions also have become factors in maintaining regulation. And with the higher average loading of transformers prevalent today, voltage regulation becomes a somewhat more pressing problem.

Use of Capacitors Helpful

Much can be gained from the use of capacitors to improve voltage conditions. But capacitors alone cannot be expected to solve the entire problem.

Neither can adequate primary voltage, ample transformer rating, or shorter secondaries of ample size. The transformer *itself* must be designed to provide good regulation.

Methods of Improving Regulation

Poor regulation in a transformer is largely the result of high impedance due to high reactance, and high copper loss. Often large mean-turn diameter is the cause of high copper loss and poor regulation. In general, most design improvements that will reduce copper loss will also contribute to improved regulation. The problem in transformer design is to achieve the desirable results without the sacrifice of other desirable performance characteristics.

Regulation also must be uniformly good over all power factors. Figure 1 indicates the effect of load on regulation, it being evident that the poorest regulation is obtained with combinations of high loads and low power factors.

Regulation with Round-Wound Design

A Round-Wound transformer basically consists of a wound core, with long round coils wound directly onto the annealed core. With the exclusive L-M method, the core is not cut or unwound in any way. This is not necessary since the coils are wound directly onto the core in an L-M designed winding machine. The construction is shown diagrammatically in Figure 2.

The design achieves a number of advantages—better cooling throughout the coils, with better overload capacity; lower exciting current; lower copper loss.

"Round-Wound" is a Line Material Co. trademark.

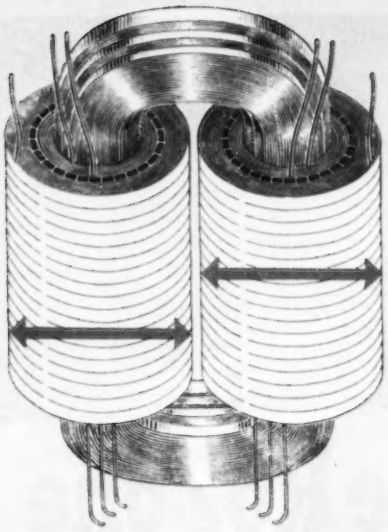


FIGURE 2—Round-Wound design. Long round coils are wound directly onto a wound core. Coils have low mean-turn diameter, a principal factor in the good regulation of Round-Wound transformers.

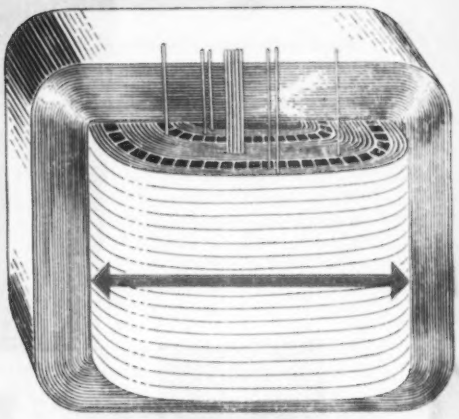


FIGURE 3—Shell type transformers generally have a much larger mean-turn diameter contributing to higher impedance, higher reactance, higher copper loss, which in turn results in poorer regulation.

The desirable smaller mean-turn diameter of the L-M coils is evident, by comparison of Figures 2 and 3 and examination of Figure 4. A higher efficiency core-coil arrangement also permits fewer winding turns. The combination of smaller turn diameter and fewer turns results in lower reactance and impedance, and in the desirable regulation indicated by Figure 1.

Thus the economy-minded power company can well take advantage of this Round-Wound design to secure, at one time, the savings offered by better regulation, lower losses, lower exciting current, and higher overload capacity.

Desirable Characteristics of L-M Round-Wound Transformers

Better Regulation: low resistance and reactance, providing low copper loss and better regulation, with more revenue to the utility and better service to customers.

High Short-Time Overload Capacity: long round coils and ample passages for oil circulation provide exceptionally good cooling with relatively low copper and hot-spot temperatures, permitting higher short-time overloads and higher load factors.

High Uniform Impulse Level: round coils are wound evenly, without hammering to shape; have longer creepage distance; ample insulation between layers and windings.

High Short-Circuit Strength: round coils have fundamentally superior strength characteristics, contributing greatly to the long life of Round-Wound transformers.

Low Exciting Current: because the wound core is not cut or disturbed, air gaps are not created in assembly, and exciting current is appreciably lower in this design.

Better Loss Ratios: the Round-Wound design makes possible an improved ratio of losses with lower total losses without sacrificing low exciting current.

For More Information

Ask the L-M Field Engineer for bulletin on L-M Round-Wound design, or write Mr. Everhart at Line Material Company, Transformer Division, Zanesville, Ohio (a McGraw Electric Company Division).

Round-Wound transformers are filled with ORTO®, L-M's oxidation-resistant transformer oil, inhibited for longer life.

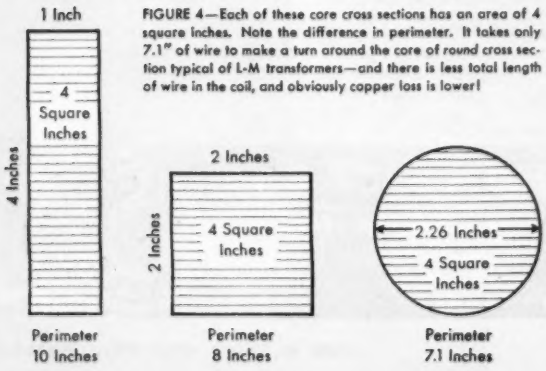
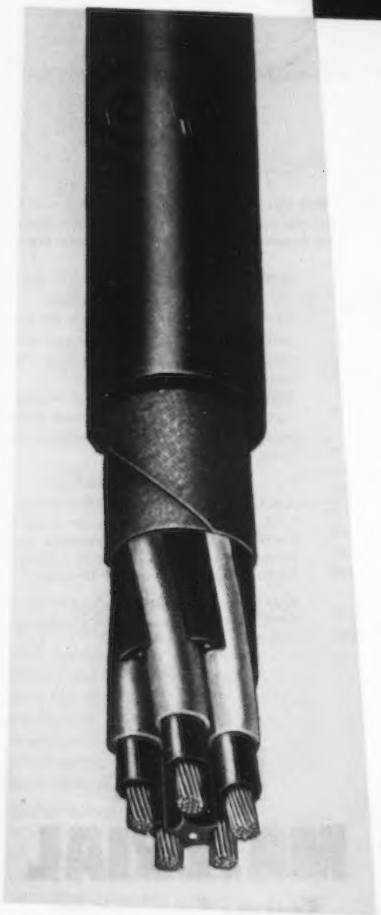


FIGURE 4—Each of these core cross sections has an area of 4 square inches. Note the difference in perimeter. It takes only 7.1" of wire to make a turn around the core of round cross section typical of L-M transformers—and there is less total length of wire in the coil, and obviously copper loss is lower!

LINE MATERIAL
Transformers
Complete Coordinated Equipment for Distribution Today

Aging characteristics of RoZone compounds, highly important to the life of the cable, are constantly checked by means of oxygen "bomb" and long-time heat tests.

5-conductor control cable RoZone insulated, Neoprene sheathed, outer sheath of RoPrene (Neoprene)—600 volts.



Rome RoZone®

Superior Ozone-Resistant Insulation Deserves Your CONFIDENCE

What its Excellent Aging Characteristics Mean to You

Q: Why have oil base compounds been recognized as superior for over half a century?

A: Partly because of excellent moisture and ozone resistance, but particularly because of their resistance to natural aging effects. Such cables are still operating satisfactorily today.

Q: How do we know that RoZone oil base compound has superior aging characteristics?

A: First, because it exceeds industry specification requirements. Second, because this type formulation has been time proved for over fifty years.

Q: Are the applications of RoZone limited by its aging qualities?

A: No. RoZone insulated cable can be used in practically any application because of its excellent aging properties. It is successfully installed direct in earth, in conduit, in racks, overhead and in combination runs.

In any installation where exceptional resistance to aging, corona and ozone cutting plus low dielectric loss and excellent electrical stability in water are required, Rome RoZone deserves your confidence.

It Costs Less to Buy the Best

RoZone is approved and accepted by leading utilities, industrials and consulting engineers.

ROME CABLE
Corporation
ROME · NEW YORK
and
TORRANCE · CALIFORNIA

ROME CABLE ROME, N.Y.

NEWS ABOUT PEOPLE

Ritchie Heads Arkansas P&L

Utility also promotes Ralph H. Teed to post of vice president in charge of operations. Clift is elected a VP

(Cover Story)

Robert E. Ritchie has been elected president of Arkansas Power & Light Co. Ritchie, who began with the utility 29 years ago as a clerk in the president's office, succeeds C. Hamilton Moses, who has resigned. Moses, however, will continue as chairman of the board, a position he has held since he became president in 1941.

In other executive changes, the utility elevated Ralph H. Teed to vice president in charge of operations and C. Allon Clift to vice president in charge of division operations. Teed has served as a vice president for the past year after being advanced from Western Division manager. Clift has been division operations manager since 1950.

Third President . . . As Moses' successor, Ritchie becomes the utility's third president since it was founded in 1913 by the late Harvey C. Couch.

The new president has been associated with Arkansas P&L's top management since he left his job as chief clerk of the Cotton Belt Railroad at Pine Bluff in 1923 to become chief clerk to Couch.

When Arkansas P&L was merged with several small utility firms in 1926, Ritchie became assistant to Frank M. Wilkes, then general manager and now president of Southwestern Gas & Electric Co. A year later he returned to Couch's office as assistant to the president. In 1935 he was made Little Rock Division manager and a vice president in 1940. He was elected senior vice president in 1949.

Baseball is almost a full-time pursuit with Ritchie outside the office. He succeeded in bringing the Monroe (La.) franchise in the Cotton States Baseball League to Pine Bluff, and presently is a vice president of the Little Rock Baseball Club.

Division Manager . . . After serving with utilities in New Mexico and Colorado, Teed went to Hot Springs in 1928 as general superintendent of the Citizens Electric Co, Hot Springs Water Co, Consumers Gas Co, and the Hot Springs Street Railway Co. Ten years later he was elected president of this utility group. When Arkansas P&L took over the electric properties at Hot Springs, Teed was appointed local manager. He was made manager of the Western Division in 1946.

Clift started his utility career as a storeroom clerk for Arkansas P&L at Stuttgart in 1926, serving later as manager at Benton, England, and Camden. He was promoted to Southwest Division manager at El Dorado in 1948 and in 1950 moved to Little Rock as division operations manager.

Moses, a native of Arkansas, received his bachelor of laws degree from the University of Arkansas in 1911. He engaged in the practice of law and took an active part in state politics before he became attorney for the Corporation Commission, which was then the regulatory body for public utilities. He abandoned a political career in 1919 to become the utility's general attorney.

•

Clark C. Frame, formerly manager of industrial relations for Westinghouse Electric Corp's East Pittsburgh Divisions, has been appointed to the new position of director of labor relations for the company. Succeeding Frame at East Pittsburgh will be Robert W. Gray, formerly assistant industrial relations manager for the plant. Frame has 17 years' service with Westinghouse and Gray started with the company in 1916.

J. J. Barker has been made head of the process department of Walter Kidde Nuclear Laboratories. Barker, formerly with Kellex Corp, will be responsible for process design and development work.

John B. Cataldo has been appointed director of research and development for BullDog Electric Products Co, Detroit. Formerly associated with the research organization of John B. Pierce Foundation, Cataldo will direct BullDog's electrical laboratory.

Willard G. Cook has joined Elliott Co, Jeannette, Pa., as manager of a newly established industry engineering department with offices at Pittsburgh. Cook formerly was with Westinghouse Electric Corp, having joined the firm in 1925.

RALPH H. TEED

C. ALLON CLIFT

There's a Westinghouse meter for every application!

Forecasts of unprecedented load growth in the coming years suggest many changes in metering practices. That's why a *complete* line of metering equipment holds an advantage for you. Specifically . . .

It's assurance that your future as well as your present needs can be readily fulfilled.

The meters illustrated here are just a few of the broad line of Westinghouse Meters offered to you. These and many more types are available to give you low-cost metering for every circuit application . . . three wire, four wire, wye or delta, or totalizing.

To meet your expanding needs, Westinghouse has continually pioneered new devices to make the desirable changes in metering methods a practical reality. And you have assurance of dependability because every Westinghouse Meter contains the quality and refinements that result from the engineering of a complete line. So whether your needs involve metering large loads or small, single or polyphase circuits, kw or kva, Westinghouse can meet your requirements.

For more information write for Booklet B-4665. Call your Westinghouse Office or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-40412-A

YOU CAN BE SURE... IF IT'S Westinghouse METERS

WILLIAM T. REACE

RALPH G. RAYMOND

ARTHUR H. SCHNEIDER

Reace Is Appointed a VP. . .

. . . of PS of Northern Illinois. He will direct electric sales for PS and Commonwealth Edison. Raymond is named as his aide

General direction of electric sales activities of Commonwealth Edison Co and Public Service Co of Northern Illinois has been combined under William T. Reace, vice president of Commonwealth Edison. In addition, Reace has been elected a vice president of Public Service.

VP's Assistant . . . Ralph G. Raymond, formerly general sales manager of Commonwealth Edison, has been named Reace's assistant in charge of electric rate administration, industrial and large commercial sales, territorial development, and technical sales services.

Arthur H. Schneider, general sales manager of Public Service, has been appointed general sales manager of the combined operation. He has been put in charge of electric sales promotion including merchandise sales, dealer sales, home service, commercial sales, and rural sales activities.

In the enlarged sales operation, L. G. Cannon is manager of rate administration; E. A. Armstrong, manager of industrial sales; G. R. Mitten, manager, territorial information department; E. J. Doyle, Jr, assistant general sales manager; R. J. Malcomson, manager, merchandising sales; D. G. Womeldorff, manager, agricultural sales; G. K. Hardacre, manager, sales promotion; and B. G. Harrington, manager, dealer sales promotion.

MacDonald Is Elevated by West Penn Power Co

Robert G. MacDonald has been elevated to assistant to the operating vice president of West Penn Power Co. Replacing him as manager of the utility's Keystone Division is Gordon Hoffman, who headed the civil engineering department at West Penn's headquarters at Pittsburgh. John Umstead, a staff engineer, was promoted to Hoffman's post.

MacDonald joined West Penn in 1931. During his first few years with the utility, he advanced to the job of assistant superintendent of lines at New Kensington before he was transferred to Pittsburgh headquarters as assistant personnel director in 1936. He later served as assistant lines superintendent at Kittanning and district manager at Bellefonte before he was made Keystone Division manager.

Hoffman, who also joined the utility in 1931, worked as an engineer at New Kensington and Kittanning before he entered the Army in 1941. Discharged with the rank of lieutenant colonel, he returned to West Penn in 1946 as a staff engineer. Hoffman was made system civil engineer in 1949.

Umstead, a 15-year West Penn veteran, has worked on the engineering staffs at Washington and Pittsburgh.

Huebner Named President of PEA

New Pennsylvania Electric Association President J. M. Huebner, left center, is congratulated by Vice President J. M. Orr, Duquesne Light Co, as new Vice Presidents O. E. Flora, left, Pennsylvania Power Co, and T. O. McQuiston, right, Metropolitan Edison Co, look on. Huebner is vice president of Pennsylvania Power & Light Co, Allentown.

OBITUARY

Adolph Maxwell, 53, division engineer at Fremont, Ohio, for Toledo Edison Co, died Sept. 20. He had been associated with electrical utilities since 1915.

James F. Fenwick, 75, retired executive of Hawaiian Electric Co, Ltd, died Sept. 24 at Honolulu. He was secretary and assistant manager of the utility from 1913 until his retirement in 1939.

Henry M. Dawes, 75, a former president of Southwestern Gas & Electric Co, died at Evanston, Ill., Sept. 29. Since 1947 Dawes had been executive committee chairman of the Pure Oil Co of which he was president from 1924 to 1947.

SCROLL, welcoming them as the 75,000th shareowner, is presented to Mr and Mrs Paul Pfeiffer by Pres Charles E. Oakes. In background is a large banner of congratulation. Directors and major executives of the company as well as reporters attended the luncheon at Allentown

Welcoming 75,000th Stockholder . . .

. . . gave Pennsylvania Power & Light Co an opportunity for an area-wide celebration. Three-day tour took Columbia couple around the system and provided newspapers with stories and pictures. Newspaper ads gave additional publicity

When Pennsylvania Power & Light Co discovered that soon it would have 75,000 stockholders, it decided that a celebration would be in order. It planned a three-day tour of company properties by the lucky purchaser.

MENU, for Allentown luncheon, had picture of Pfeiffers on cover in sepia and blue

SIEGFRIED SUBSTATION, PP&L's biggest and one of the larger substations in eastern part of the country, is described to the Pfeiffer party by F. J. Shovlin, an operating official

This turned out to be Mr and Mrs Paul O. Pfeiffer, Columbia, Pa.

Pfeiffer, a 30-year-old veteran of World War II and the service manager of an automobile agency, and his wife bought the stock as an investment after a "family huddle." One of Pfeiffer's customers had recommended it. They had no idea of what was in store for them.

The tour started on a Tuesday morning Thomas Pennypacker, manager of the company's Columbia district, and his wife were host and hostess for the trip.

Luncheon at Allentown . . . The party went from Columbia to company headquarters at Allentown. There the Pfeiffers attended a luncheon with the directors and major executive officers of the comany. The luncheon was prepared by the home service organization and was topped off with a large 75,000th shareowner cake, the Pfeiffers cutting the first slice. Charles E. Oakes, company president, presented them with a commemorative scroll.

Then the Columbia couple toured the company's 23-story headquarters building and the Siegfried substation. Enroute they traveled in a company car equipped with two-way radio-telephone facilities as a demonstration of this time saving device.

Closing Dinner at Lancaster . . . Wednesday was spent inspecting construction work at the Martins Creek Plant on the Delaware River and the service depot and laboratories at Hazelton. Thursday was spent at the Sunbury Plant in the central part of the state. And the tour was closed with a dinner at Lancaster at which civic and business leaders were present. At this time the Pfeiffers were presented with an electric range and automatic clothes washer.

Not forgotten was the press. The entire tour was accompanied by writers and photographers assigned by the advertising and publicity department. Their task was to provide news releases and pictures for the local press in the cities visited. At each tour spot the local papers gave full coverage, and most area papers ran a story.

In addition to other publicity media, a news flash bulletin board poster advised all company employees throughout the 9,500 sq mile service territory. Two advertisements on the 75,000th shareowner were also placed in area newspapers.

ONE OF THE ADVERTISEMENTS published in all daily papers throughout the company's service area shows the Pfeiffers with their daughter in the garden of their Columbia home

Itinerary for 75,000th Shareowner Tour Program

Mr. Storb	Explain program to the shareowner.
Mr. Lichtenwalner	Decide on care of children, if any.
Mr. Lichtenwalner	Do children stay at home or go along on trip.
Mr. Storb	Introduce share owner and family to tour host and hostess and make mutual arrangements for the tour:
Mr. Pennypacker	Leaving time—7:30 AM.
Mr. Pennypacker	Discuss clothes to be taken along.
Mr. Lichtenwalner	Advertising Department interview for news story background.
"	(1) Take formal and informal photos for press kit and other uses.
"	(2) Get shareowner's statement on purchase for news articles, etc.
	Arrange for transportation.
Mr. West	(1) 7-passenger car and chauffeur. (2) Station wagon.
Mr. Lichtenwalner	(3) Publicity car.
Mr. West	(4) Radio 5-passenger car for Siegfried trip.
Mr. Flood	Check on insurance coverage for trip.
Mr. Lichtenwalner	Make hotel room accommodations for Allentown hotel and Hotel Altamont, Hazelton.
	Make meal arrangements and menu suggestions.
	(1) Tuesday Directors' luncheon in general office, menu suggestions to Mr. Oakes.
	(2) Tuesday evening dinner.
Mr. Palmer and Mr. Flood	(3) Wednesday Hazelton luncheon.
	(4) Wednesday Hazelton dinner.
	(5) Thursday Sunbury luncheon, menu suggestions to Mr. Mensch.
	(6) Thursday home division dinner, menu suggestions to home division vice president.

DETAILS OF THE TRIP were worked out days in advance. Everybody from President Oakes down to the chauffeur knew what he was to do, where, and when. Alibis weren't accepted

Vo-Ag Teachers Learn About Motors

"Learning by doing" was the principle of instruction employed in two-day courses on electric motors staged by Appalachian Electric Power Co for about 250 vocational agriculture teachers at Abingdon and Roanoke, Va., and Bluefield, West Va., last spring.

First, vo-ag's at each school were given the basic idea of a motor by having each construct a miniature one with a block of wood, a few nails and a length of wire. Then, in groups, they assembled ¼-hp split-phase motors, using Westinghouse "Moto-Kits," after the windings and connections had been explained to them.

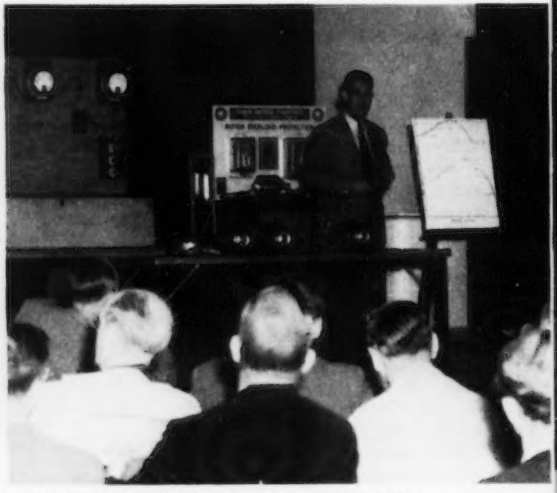
Third was repair of motors. Each vo-ag teacher brought a broken-down motor to the school. He was shown how to repair it and did so under the guidance of the school instructors.

Other parts of the course covered selection of proper kinds and sizes of motors for different farm applications, calculation of belt and pulley sizes, and motor characteristics, care and maintenance.

A second course was staged in August. At this, instruction was given in application of portable motors, hot bed construction using electric heat, and building equipment for electrical uses in poultry raising.

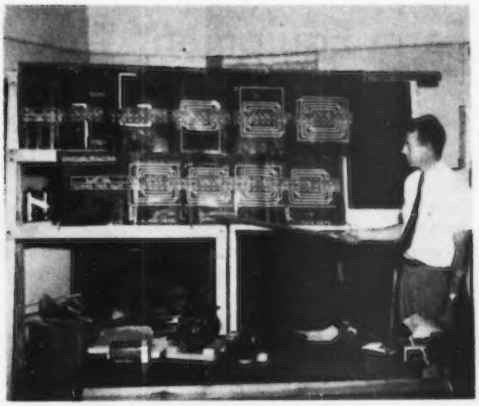
1 Vo-ag teachers, students pro tempore, each built a little battery-operated motor, thus learning the basic idea

6 and then re-assembled, ready to go back to work.



7 Characteristics of different motors were explained . . .

2 They then assembled standard motors from parts supplied in kits, and found it not very hard . . .



3 . . . after the apparently intricate, but really simple, windings and connections had been explained to them.

4 Disabled motors were brought in. After troubles were diagnosed and locations of faults determined . . .

5 . . . the disabled motors were taken apart, thoroughly cleaned, repairs made . . .

8 and instruction given on calculation of electrical and mechanical factors in motor applications

MEETINGS

Farm Equipment Talks Set . . .

. . . for National Farm Electrification Conference scheduled for Oct. 19-21 in Detroit. Shepperd, REA aide, to address parley

Conferees attending the seventh annual National Farm Electrification Conference will be given an opportunity of getting at "grass roots" answers to specific utilization problems pertaining to appliances in the home and electrically operated time and labor-savers on the farmstead.

Specialists in each line will be present to guide the discussions and to handle formal presentations when the conference is held Oct. 19-21 at the Statler Hotel, Detroit.

Format of the 1952 conference will differ from past programs in that it will be divided into section as well as general meetings. Section sessions will be devoted to practical discussions of electrical applications of interest to the farm homemaker and the production worker. Nationally known farm electrification and agricultural leaders will address the conference's general sessions.

Section I . . . This sectional meeting, planned for Monday, Oct. 20, will be devoted to rural electrification in the home. "Labor Saving in the Home and Laundry" is the topic Miss Olivia Meyer, Michigan State College, will discuss. L. H. Hruby, General Electric Co, will talk about lighting in the home. Arthur DePuy, Minneapolis-Honeywell Regulator Co, will describe comfort control in the home of today.

Section II . . . At this meeting, also scheduled for Monday, attention will be directed towards rural electrification in the farmstead. A panel discussion on farm wiring problems and their solutions will be conducted by F. J. Groleau, National Electrical Contractors Association. Edward Smith, Dayton Power & Light Co, will make a report on Edison Electric Institute's farm program. S. Riggs Shepperd, assistant administrator, Rural Electrification Administration, will also present a report on Rural Electrification Association's electric farming program.

Sectional meetings have also been slated on the farm press, radio, and television and the college and industrial extension in rural electrification.

General Sessions . . . New electrical equipment for the farm is the subject W. D. Hemker, Westinghouse Electric Corp, will report on at Monday's General Session. Mrs. Maurine Harris, assistant editor, Successful Farming, will offer her views on how the electrical industry can best serve the housewife at the General Session scheduled for Tuesday.

Dr Armand Hunter, director of television, Michigan State College, will also present his observations on the present and future roll of television in agricultural education.

A summary of the conference with suggestions for action will be made by H. E. Slusher, president of the Missouri Farm Bureau Federation.

PEA Group to Discuss Future Equipment Trends

Future trends in electrical equipment will be analyzed by P. F. Lawrence, Westinghouse Electric Corp, at the fall meeting of Pennsylvania Electric Association's Systems Operation Committee. The meeting is slated for Oct. 16-17 at Hotel Roosevelt, Pittsburgh.

PEA's Prime Movers Committee also has scheduled a fall meeting for Oct. 30-31 at Hotel Roosevelt. At this meeting the dry fly ash handling system at Elrama Power Station will be described by W. H. Jones, Duquesne Light Co.

Walker Cisler to Speak

Walker L. Cisler, president, Detroit Edison Co, will be the principal speaker at the opening session of the Middle Eastern District Meeting of the American Institute of Electrical Engineers. His topic will be "Management Looks Ahead in the Electric Power Industry." The AIEE parley is planned for Oct. 28-30 at Commodore Perry Hotel, Toledo.

CALENDAR

***Edison Electric Institute**
Electrical Equipment Committee, Hotel Roosevelt, New York, Oct. 13-14; Commercial Division General Committee, Hotel Biltmore, New York, Oct. 17; Transmission - Distribution Committee, Hotel Adolphus, Dallas, Tex., Oct. 23-24.

***American Institute of Electrical Engineers**
Fall General Meeting, Jung Hotel, New Orleans, Oct. 13-17; Middle Eastern District Meeting, Commodore Perry Hotel, Toledo, Oct. 28-30; Conference on Machine Tools, Ten Eyck Hotel, Albany, Oct. 29-31; Special Technical Conference on Electrically Operated Recording and Controlling Instruments, Benjamin Franklin Hotel, Philadelphia, Nov. 17-18; Winter General Meeting, Hotel Statler, New York, Jan. 19-23, 1953.

Pennsylvania Electric Association
Fall Meeting, Systems Operation Committee, Hotel Roosevelt, Pittsburgh, Oct. 16-17; Industrial Committee, Bedford Springs Hotel, Bedford, Pa., Oct. 23; Fall Meeting, Meter Committee, Fort Stanwix Hotel, Johnstown, Pa., Oct. 23-24; Prime Movers Committee, Hotel Roosevelt, Pittsburgh, Oct. 30-31; Communications Committee, Hotel Syracuse, Syracuse, N. Y., Nov. 6-7; Fall Meeting, Relay Committee, Robert Treat Hotel, Newark, N. J., Nov. 13-14.

Southeastern Electric Exchange
Accounting Conference, Jung Hotel, New Orleans, La., Oct. 16-17; Sales Conference, Thomas Jefferson Hotel, Birmingham, Ala., Oct. 29-31.

Great Lakes Power Club
Fall Meeting, Harris Hotel, Kalamazoo, Mich., Oct. 16-17.

American Welding Society
33rd National Fall Meeting, Bellevue-Stratford Hotel, Philadelphia, Week of Oct. 19.

National Association of Suggestion Systems
10th Annual Convention, Drake Hotel, Chicago, Oct. 20-21.

National Farm Electrification Conference
Statler Hotel, Detroit, Mich., Oct. 19-21.

National Electrical Industries Show
Sponsored by Eastern Electrical Wholesalers Association, 69th Regiment Armory, New York, Oct. 21-24.

National Association of Railroad and Utilities Commissioners
Annual Meeting, Hotel Marion, Little Rock, Ark., Nov. 10-13.

National Electrical Manufacturers Association
Annual Meeting, Haddon Hall Hotel, Atlantic City, N. J., Nov. 10-13.

American Standards Association
34th Annual Meeting, Waldorf-Astoria Hotel, New York, Nov. 25.

American Society of Mechanical Engineers
Annual Meeting, Statler Hotel, New York, Nov. 30-Dec. 5.

***20th National Power Show**
Sponsored by American Society of Mechanical Engineers, Grand Central Palace, New York, Dec. 1-6.

***Public Utilities Advertising Association**
Winter Meeting, Region 2, Claridge Hotel, Atlantic City, N. J., Dec. 4-5.

Institute of Radio Engineers
Joint Electronic Computers Conference with American Institute of Electrical Engineers, Park Sheraton Hotel, New York, Dec. 10-12.

*** Addition this week.**

No job too big for ELLIOTT approved service shops

Soldering and taping final connections in the big generator stator.

Close-up of service men inside the stator inserting wedges and lashing coils.

The 12,000-kva generator installation.

REWINDING 12,000-KVA VERTICAL WATERWHEEL GENERATOR

• Using factory-built coils and factory methods, service men of Lansen-Hogue Electric Company, Los Angeles, handle this big generator job with no difficulty.

The Larsen-Hogue Company is one of many carefully selected shops, strategically located throughout the United States, to service all types of electrical equipment built by Elliott Company. Together they comprise a trained and dependable service organization which stands back of every Elliott motor and generator. In addition to these Approved Service Shops, is the staff of Elliott factory-trained Service Engineers, and the repair facilities which are available at the factory for regular or special service.

For the location of the Elliott Approved Service Shop capable of handling *your* service job — no matter what its size — contact your nearest Elliott District Office or write Elliott Company, Ridgway Division, Ridgway, Pa.; or Elliott Company, Crocker-Wheeler Division, Ampere, N. J.

RJ-26

ELLIOTT Company

RIDGWAY DIVISION
CROCKER-WHEELER DIVISION

Which Voltage is Best for Your

HERE ARE THE FACTS
to help select the best unit

ONLY 32-STEP VOLTAGE REGULATORS can give the accuracy you need for high system profits. Only their small 5/8% increments can keep your voltage within ± 1 volt limits. Now the only question is: "Which 32-step voltage regulator is best for my distribution system?"

A complete line of 32-step regulators for every voltage need is the Allis-Chalmers answer to this question. The advantages of the three different Allis-Chalmers regulators are outlined below, but *every* Allis-Chalmers 5/8% step voltage regulator gives you these features: a narrow ± 1 volt band, 20% range of regulation, long-life contacts, the *Feather-Touch* control feature, and unit construction to assure highest quality workmanship plus long, trouble-free service life.

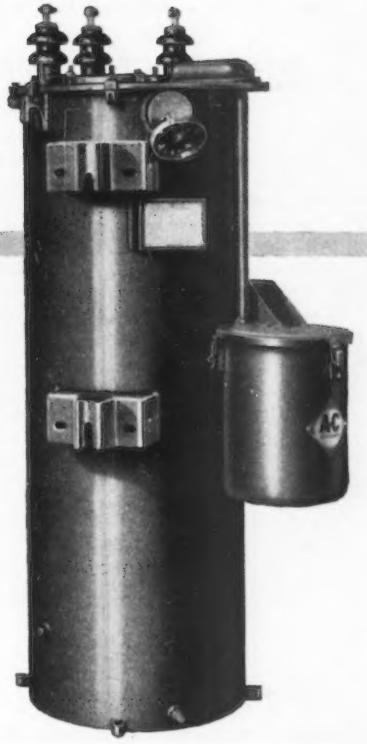
TWENTY YEARS' EXPERIENCE

Only Allis-Chalmers brings you the advantage of twenty years of 5/8% step regulator experience. You can get complete information on any of these units by calling your nearest A-C district office. Or write Allis-Chalmers, Milwaukee 1, Wisconsin. A-3880

Vari-Amp is an Allis-Chalmers trademark.

ALLIS-CHALMERS A-C ALLIS-CHALMERS

Regulator System?



DISTRIBUTION REGULATORS

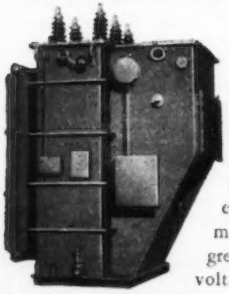
Here is the modern, flexible tool for solving your voltage regulating problems. Allis-Chalmers distribution regulators offer great new possibilities in bringing voltage regulation to a wide variety of applications. The cost is low. They are easy to mount and simple to maintain. If requirements change, they can be shifted to other lines with a minimum of labor.

Field-testing during the past eight years has proved the value of Allis-Chalmers distribution regulators both in substations and feeder lines. You can use them with complete confidence. They bring all the advantages of Allis-Chalmers 5/8% step regulators plus savings in installation and maintenance that add up to real profits on any system.

RATINGS AVAILABLE

7620 Volts—15, 50, 100 amp
5000 Volts—50, 100 amp
2500 Volts—100, 200 amp

THREE-PHASE POWER REGULATORS



Three-phase power regulators are available in sizes through 69 kv, 2500 kva. In units of 15 kv and below, unit construction results in 78 fewer bolted connections, simplifies maintenance. All Allis-Chalmers 5/8% step regulators are equipped with long-life contacts made of arc-resisting metals for greatly reduced deterioration. The voltage integrator and *Feather-Touch* control feature increase accuracy and reliability under a variety of load conditions.

SINGLE-PHASE POWER REGULATORS

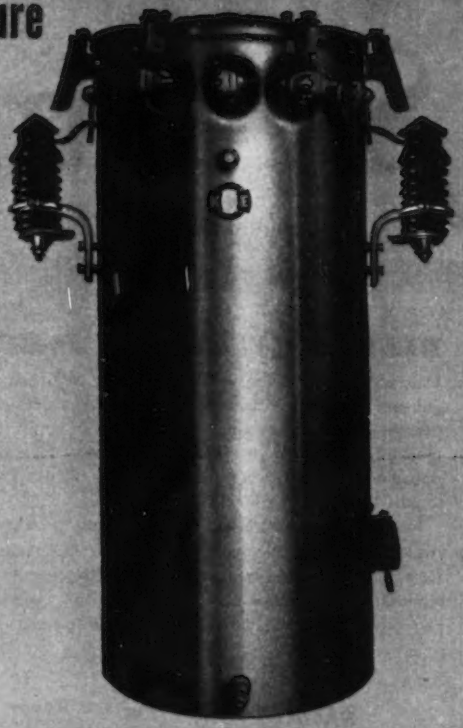
Single-phase power regulators, available in sizes from 2400 volts to 6900 volts, 12 kva to 69 kva, bring all the advantages of Allis-Chalmers 5/8% step regulators plus the *Vari-Amp* adjustment feature, which provides five current ratings instead of the two provided on other types of regulators. As loads increase, ranges can be reduced in proportion — they don't have to be sliced in half.

The *Vari-Amp* adjustment feature also increases short circuit capacity. In addition, adjustment is greatly simplified because one man can change ratings in less than thirty seconds. No taping, bypassing, or changing connections is needed.

Originators of 5/8% Step Regulation

TRANSFORMER OPERATORS' QUIZ:

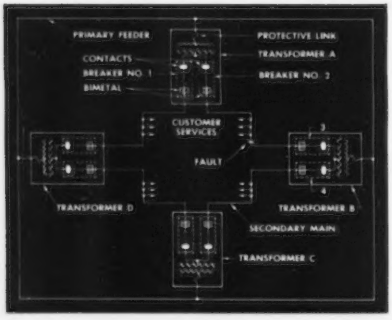
How do KUHLMAN CSPB® transformers protect equipment and assure uninterrupted service?



In high load areas, distribution transformers are often banked with both primaries and secondaries connected in a closed loop with "built in" circuit breakers. This arrangement provides two main advantages. It protects equipment against excessive surge voltages and the concentrations of power at fault points; and it assures uninterrupted customer service by permitting transformers in the bank to "gang up" to supply power to any point where there is an increased demand.

You get these advantages when you use Kuhlman CSPB banked transformers: (1) rapid fault location with a minimum load loss and service interruption, (2) reduced voltage drop due to low effective impedance of paralleled transformers, (3) reduced flicker caused by suddenly applied loads, (4) short-time overloads carried safely, because of the thermal loading provided by secondary breakers, (5) isolation of faulty transformers by primary protective link and secondary breaker, and (6) all protective devices included in one single installation, eliminating crossarm accessories.

Here's how it works . . .



Assuming a fault occurs at X in the diagram, the Kuhlman CSPB transformer bank operates as follows:

1. The fault draws current from the transformers in inverse proportion to the total impedance of each transformer.

2. Transformers A and B, being adjacent to the fault, supply the bulk of the fault current. This current combines with the fault current from transformers C and D, flowing through the bimetals of breakers 2 and 3.

3. At the same time, the fault currents from C and D oppose the load currents in breakers 1 and 4, causing breakers 2 and 3 to open and isolate the faulted section.

4. With the faulted section isolated, transformers A and B will continue to furnish their former share of the load through breakers 1 and 4 to the remaining network.

5. A red signal automatically lights on the transformer connected to the faulted circuit, in this case transformer B.

Kuhlman ELECTRIC COMPANY, BAY CITY, MICHIGAN

Write for descriptive bulletins on Kuhlman Power, Distribution, Dry Type, Sol-T-Kuhl, and specialty units. For details of CSPB transformers, ask for Bulletin CS-302.

EXPORT REPRESENTATIVES: *International Standard Electric Corporation,* 67 Broad Street, New York 4, N.Y. Cable address: Microphone, N.Y.

Pay Formula Questioned

Research team says the national 'productivity increase' pattern does not fit the power industry situation

While it is commonly accepted that productivity per manhour increases 2 to 3% annually, there is little relation between this long-term national average and the actual record of the electric industry, Austin M. Fisher and Fred Rudge of Fisher, Rudge & Neblett, Inc., have stated in their research monograph, "Productivity as a Factor in Wage Determination."

They contend productivity changes in the electric industry ranged from a minus 11.8% to plus 36.9% in the period 1939-50, resulting in an overall increase of 71% for the period as a whole. During this period average hourly earnings in that industry went up 84.2%.

WSB Working on Formula . . . Issued at a time when the Wage Stabilization Board is considering a national wage formula using the so-called "Annual Improvement Factor," the study points out that reliable productivity trends are lacking for most industries, and that the few which are available reflect wide variations from year to year.

"Advocates of a national wage policy based on productivity increases disregard these fluctuations," Rudge declared at a press preview of the monograph. "The CIO maintains that all workers should have their increases tied to a national productivity index regardless of the actual growth of their own particular industry or employer. It holds that all workers contribute to increased output, which it claims is at the rate of 4% per annum, and that all should share on a nationwide basis."

AFL Formula . . . "The American Federation of Labor maintains that the national gains increase in productivity should be the minimum wage boost for all. It advocates a 'catch-up' productivity wage adjustment of 11%, based on its estimate of a 5.9% increase in 1950 and a 5.4% increase in 1951. Both federations say their reason for linking wage increases with productivity is to assure workers that their standard of living will improve as the nation's economy continues to expand."

Management accepts the latter premise, Rudge declared, but resists any formula which would ignore the impact of varying economic forces and legislate a rate of growth, whether it was present or not. Wage hikes have outstripped productivity gains without the use of such a formula, he pointed out. Furthermore, increased output has paid the cost of employee benefits, such as shorter hours, vacations, pensions and the like.

If you are interested in receiving a copy of this research monograph, you can write Fisher, Rudge & Neblett, Inc, 250 Park Ave, New York 17, N. Y., or 608 South Hill St, Los Angeles 14, Calif.

IT ISN'T ALL IN THE PAY CHECK!
EACH YEAR CENTRAL HUDSON PAYS A LOT OF "EXTRAS" FOR THE BENEFIT OF ITS EMPLOYEES –
IN 1951 SUCH EXTRAS TOTALED $1,021,507 . . .
$876
$876
. . . AN AVERAGE OF $876 PER EMPLOYEE
OR AN AVERAGE OF APPROXIMATELY 45 CENTS PER HOUR WORKED
COSTS REQUIRED BY LAW – AND ADDITIONAL COMPANY PAYMENTS
SOCIAL SECURITY TAXES FOR OLD AGE INCOMES, ETC (EMPLOYEES PAID AN EQUAL AMOUNT) $58,075
WORKMEN'S COMPENSATION INSURANCE AND SAFETY PRECAUTIONS AGAINST WORK ACCIDENTS $95,546
UNEMPLOYMENT INSURANCE TAXES AND COMPANY PAYMENTS TO EMPLOYEES WHO LEFT US $118,576
CONTINUATION OF PAY WHILE SICK 71,121
TOTAL $343,318
COSTS of COMPANY PLANS
VACATIONS, HOLIDAYS AND EXCUSED ABSENCES $398,126
PENSIONS AND LIFE INSURANCE PLANS (EMPLOYEES PAID AN ADDITIONAL $176,559) $254,181
OPERATION OF RIPTON AND EDUCATIONAL AND THRIFT ACTIVITIES $25,882
TOTAL $678,189
TOTAL 1951 COSTS FOR EMPLOYEE BENEFITS AND SECURITY – $1,021,507

Uncovering the Hidden Benefits

To bring to the employees' attention the "extra" benefits they receive which do not show up in their pay checks, Central Hudson Gas & Electric Corp ran this cartoon in the September issue of its employee magazine.

Accounting Treatment of Accelerated Amortization by State Public Service Commissions

***Alabama*—Alabama Power Co 7/21/52**

● To charge, during the period the amortization of emergency facilities results in reduction of federal income taxes, to "Provision for Deferred Federal Income Taxes" as a subaccount under Account 507, Taxes, and to credit to "Earned Surplus Restricted for Future Federal Income Taxes" as a separate account under Account 271, Earned Surplus, an amount equal to the reduction in federal income taxes arising out of accelerated amortization in excess of normal depreciation allowable for federal income tax purposes.

● To charge, during the period the accelerated amortization of emergency facilities results in increased federal income taxes, to "Earned Surplus Restricted for Future Federal Income Taxes, until such restricted surplus is exhausted and to credit to "Current Federal Income Taxes Deferred in Prior Years", a subaccount under Account 507, Taxes, an amount equal to such increase in federal income taxes.

***Louisiana*—Louisiana P&L Co 5/2/52**

● To charge to a new account "Provision for Deferred Federal Income Taxes" as a separate subaccount under Account 507, Taxes, and to credit to "Reserve for Deferred Federal Income Taxes", another new account, as a separate subaccount under Account 258.2-Miscellaneous Reserves, an amount or amounts in total for each year equal to the reduction in Federal income taxes arising out of special amortization.

● After such amortization under each necessity certificate is completed or is discontinued by the Company and thereafter during the life of such property or until the earlier exhaustion of the portion of the Reserve for Deferred Federal Income Taxes related to such property.

● To charge to "Reserve for Deferred Federal Income Taxes" and to credit to "Portion of Current Federal Income Taxes Deferred in Prior Years" (a separate subaccount under Account 507-Taxes) an amount, or amounts, in total for each year for each necessity certificate, equal to the increase in the Federal income taxes payable for that year due to the fact that normal depreciation cannot be deducted because of previous amortization of the property under such necessity certificates.

***Maine*—Central Maine Power 8/11/52**

● The Company shall account for property in respect to which such Certificates of Necessity are issued in the same manner as other property of the Company and shall accrue depreciation of such facilities on its books at the normal rates of depreciation.

● During the amortization period the Company shall include in operating expenses under an account entitled "Provision for Future Federal Taxes on Income" an amount equal to the reduction in Federal taxes on income resulting from the amortization of the emergency facilities, and that the amount, so included, be credited to "Surplus Restricted to Future Federal Taxes on Income."

● That after the amortization period, the Company credit to income by appropriation from "Surplus Restricted to Future Federal Taxes on Income," an amount equal to the then current increase in Federal Taxes on income resulting from the fact that the depreciation deduction applicable to the emergency facilities was anticipated in the amortization period, and that the appropriation be credited to an account included in the operating expenses entitled "Appropriation from Surplus Restricted to Future Federal Taxes on Income."

***Michigan*—Consumers Power Co 4/3/52**

● To charge to "Provision for Deferred Federal Income Taxes" as a separate subaccount under Account 507, Taxes, and to credit to "Appropriated Surplus Arising from Deferment of Federal Income Taxes" as a separate subaccount under Account 270, Appropriated Surplus, an amount or amounts in total for each year equal to the reduction in Federal Income Taxes arising out of special amortization, as provided in Section 124A of the Internal Revenue Code, in excess of the reduction resulting from normal income tax depreciation of the cost of such facilities.

● After such amortization under each Necessity Certificate is completed or is discontinued by the Company and thereafter for a period of 25 years (which is the estimated remaining life of the property for tax purposes), or during the remaining life of such property if less than 25 years, or until the earlier exhaustion of the portion of the Capital Surplus related to such property:

1. To charge to "Appropriated Surplus arising from Deferment of Federal Income Taxes" and to credit to "Portion of Current Federal Income Taxes Deferred in Prior Years" (a separate subaccount under Account 507, Taxes) an amount or amounts in total for each year for each Necessity Certificate equal to 1/25th of the Appropriated Surplus arising from each Necessity Certificate, and
2. To charge to "Appropriated Surplus arising from Deferment of Federal Income Taxes" and to credit to "Portion of Current Federal Income Taxes Deferred in Prior Years" an amount or amounts equal to any balance of Appropriated Surplus at December 31 of each year related to plant retired during said year which plant had been amortized under such Necessity Certificate.

***Michigan*—Detroit Edison Co 8/8/51**

○ To charge to "Provision for Deferred Federal Income Taxes" as a separate subaccount under Account 507-Taxes, and to credit to "Reserve for Deferred Federal Income Taxes" as a separate subaccount under Account 258.2-Miscellaneous Reserves, an amount or amounts in total for each year equal to the reduction in Federal Income Taxes arising out of special amortization, as provided in Section 124A of the Internal Revenue Code, rather than normal income tax depreciation of the cost of such facilities.

● After such amortization under each Necessity Certificate is completed or is discontinued by the Company and thereafter during the life of such property or until the earlier exhaustion of the portion of the Reserve for Deferred Federal Income Taxes related to such property,

1. To charge to "Reserve for Federal Income Taxes" and to credit to "Portion of Current Federal Income Taxes Deferred in Prior Years", (a separate subaccount under Account 507-Taxes) an amount, or amounts, in total for each year for each Necessity Certificate, equal to the increase in the Federal Income Taxes payable for that year due to the fact that normal depreciation cannot be deducted because of previous amortization of the property under such Necessity Certificates, and
2. To charge to "Reserve for Deferred Federal Income Taxes" and to credit to "Portion of Current Federal Income Taxes Deferred in Prior Years", an amount, or amounts, equal to any balance in said reserve at December 31 of each

year for plant retired during said year which had been amortized under such Necessity Certificate.

***N. H.*—Public Service Co 5/20/52**

● This Commission concurs with the Michigan Public Service Commission in their treatment of the Detroit Edison Case (see above) and will retain jurisdiction of this matter, and will issue such orders as it considers necessary when, as and if the Company later decides to accept Certificates of Necessity from Defense Production Administration under 124A of the Internal Revenue Code.

***New Mexico*—General Order 6/9/52**

● Take amortization for tax purposes but continue to charge normal depreciation on the books. Then make a further charge on the books equivalent to the tax reduction arising by reason of amortization (instead of depreciation) and credit this to a reserve. After the amortization period the reserve would be channelled back into income in annual amounts equal to the tax increase arising from the fact that no depreciation can then be claimed with respect to the fully amortized property . . . "IT IS THEREFORE ORDERED that the accounting treatment designated in Alternative No. 3 [above] be . . . adopted and approved for use in the accounting treatment to be given amounts for any Certificates of Necessity."

Ohio

Cleveland Electric Illum. Co 3/13/52
Cincinnati G&E Co 4/16/52
Ohio Power Co 8/27/52
Ohio Edison Co 8/28/52

● Applicant shall accrue depreciation of such emergency facilities on its books at the normal rates of depreciation.

● Applicant shall appropriate from income, by inclusion in operating expenses, a provision for future Federal income taxes with a corresponding credit to surplus restricted for future Federal income taxes, the amount of which shall be limited to the Federal income tax differential resulting from amortizing the emergency facilities.

● This accounting procedure shall be continued in each case for the effective amortization period.

● Upon termination of the amortization period in each case, the surplus restricted for future Federal income taxes shall be charged and the current provision for Federal income taxes credited with an amount equivalent to the annual increase in Federal income taxes resulting from the fact that depreciation of the emergency facilities for tax purposes may no longer be claimed.

Today in Utility Finance

YIELDS (%)

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
DATE									
1952									
Oct. 2	**2.99**	**3.03**	**3.16**	**4.11**	**4.25**	**4.59**	**5.18**	**5.57**	**5.98**
Sept. 25	2.99	3.03	3.16	4.10	4.26	4.61	5.18	5.59	5.96
3rd 1952	2.99	3.03	3.16	4.10	4.26	4.61	5.18	5.59	5.96
2nd 1952	2.95	3.00	3.09	4.05	4.31	4.60	5.38	5.85	6.42
1st 1952	2.95	2.99	3.13	4.11	4.29	4.66	5.35	6.03	6.47
4th 1951	3.02	3.07	3.21	4.32	4.50	4.91	5.42	6.18	6.84

Data: Reis & Chandler, Inc.

EARNINGS

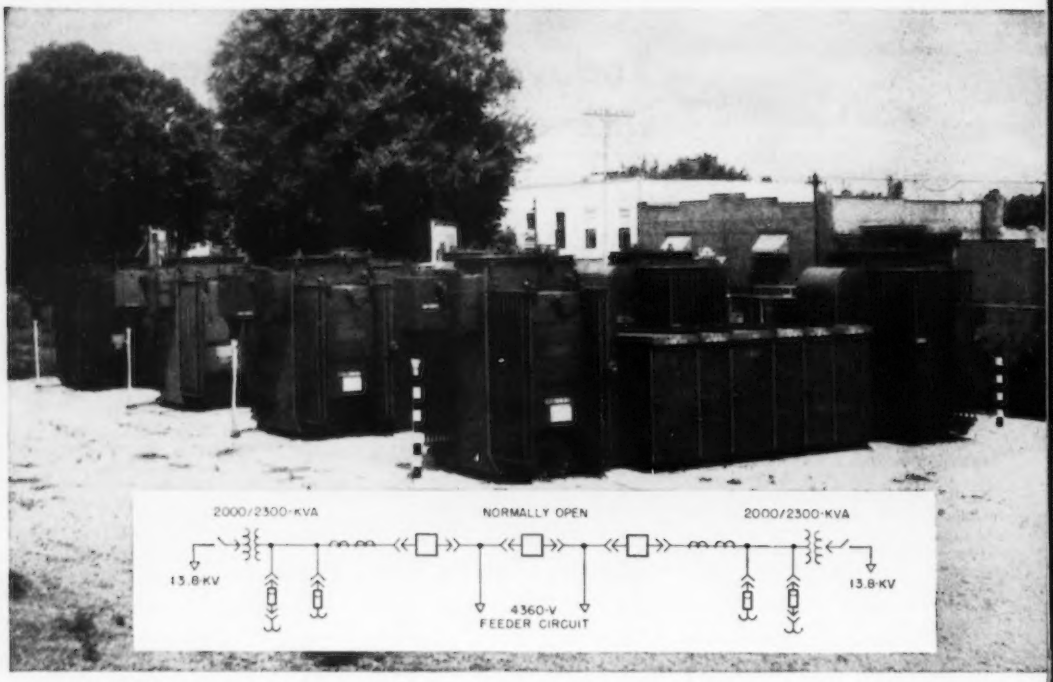
Company	Period Months	Ended	Net Income 1952	Net Income 1951	Earnings Per Common Share 1952	Earnings Per Common Share 1951
Alabama Power	12	August	$11,592,500	$10,468,911	$....	$....
Arizona Public Service	12	August	2,739,917	1,999,707	....	....
Consolidated Gas Electric Light & Power	8	August	6,633,805	6,565,219	1.19	1.20
Consumers Power	12	August	20,183,334	19,827,890	2.72(a)	2.93(a)
Dallas Power & Light	12	August	3,807,461	3,377,236	....	....
El Paso Electric	12	August	1,471,806	1,419,988	1.84	1.77
Georgia Power	12	August	11,423,846	9,213,815	....	....
Gulf Power	12	August	1,615,301	1,107,345	....	....
Gulf States Utilities	12	August	7,024,444	5,879,853	1.76(b)	1.61(b)
Iowa Southern Utilities	12	August	904,041	830,655	1.29(c)	1.69(c)
Mississippi Power	12	August	1,950,739	1,759,427	....	....
Public Service Co of Indiana	12	August	9,659,297	8,128,921	2.40(e)	2.27(e)
Southern California Edison	12	August	22,429,964	22,896,036	....	....
Southern Co, consolidated	12	August	19,634,360	16,065,842	1.15(f)	0.98(f)
Tampa Electric	12	August	2,010,382	1,827,581	3.21(g)	3.05(g)
Texas Electric Service	12	August	7,881,479	6,058,448	....	....
Texas Power & Light	12	August	7,081,371	5,730,591	....	....
Virginia Electric & Power	12	August	11,826,147	10,091,497	1.80(h)	1.75(h)
West Penn Electric, consolidated	12	August	12,389,586	10,378,927	3.08(i)	2.95(i)

Notes—(a) Based on 6,176,693 shares in 1952 and 5,615,176 shares in 1951; (b) Based on 3,134,168 shares in 1952 and 2,884,590 shares in 1951 and before giving effect to extra-ordinary reduction in Federal income tax; (c) Based on 573,891 shares in 1952 and 399,883 in 1951; (e) Based on 3,691,859 shares in 1952 and 3,249,231 shares in 1951; (f) Based on 17,076,669 shares in 1952 and 16,306,494 shares in 1951; (g) Based on 611,776 shares in 1952 and 508,441 shares in 1951; (h) Before giving effect to extraordinary reduction in Federal income tax and based on 5,070,566 shares in 1952 and 4,609,497 shares in 1951; and (i) Before special tax adjustments and based on 3,960,000 shares in 1952 and 3,520,000 shares in 1951.

FINANCING

Company and Description	Amount of Offering ($000)	Offering Price	Yield to Public
WEEK OF OCTOBER 2-8			
Common Stock			
California Electric Power—350,000 sh	$3,413	$9.75	6.15%
California Oregon Power—250,000	6,588	26.35	6.07
Sierra Pacific Power—26,775 sh (being offered preferred holders on 1-for-6 basis and commonholders on 1-for-12 basis, record Oct. 6 to expire Oct. 20)	616	23.00	6.96
WEEK OF OCTOBER 9-15			
Bonds			
California Oregon Power—1st mtg 1982	$7,000	....	....
Utah Power & Light—1st mtg 1982	10,000	....	....
Common Stock			
Long Island Lighting—599,942 sh (being offered commonholders on 1-for-7 basis, record Sept. 24 to expire Oct. 9; Blyth & Co—First Boston Corp, underwriters)	$9,299	$15.50	5.81%
Iowa Public Service—150,122 sh (being offered commonholders on 1-for-8 basis, record Sept. 25 to expire Oct. 14; stockholders being allowed over-subscriptions; no underwriting)	3,153	21.00	6.67
SCHEDULE FOR OCTOBER TO DECEMBER			
Bonds			**Bid Date**
Carolina Power & Light—1st mtg 1982	$20,000	.....	Oct. 20
Virginia Electric & Power—1st mtg 1982	20,000	.....	Oct. 21
Long Island Lighting—1st mtg 1982	20,000	.....	Nov. 18
Gulf States Utilities—1st mtg 1982	10,000	.....	Nov. 24
New Orleans Public Service—1st mtg 1982	6,000	.....	Dec. 15
Common Stock			
Hawaiian Electric—50,000 sh (being offered commonholders on 1-for-10 basis, record Oct. 3 to expire some time in Nov.; no underwriting)	1,000	20.00	10.00*
Duquesne Light—250,000 sh	.....	.....	Oct. 20

Notes—* Dividends are subject to a 2% Hawaiian witholding tax. If this tax is deducted, the yield would be 9.80%. ‡ 170,000 shares will be sold by Philadelphia Co and 80,000 shares will be sold by the company as "new money."



"BLOCK BUILDING" in Kansas City. Substation 45 points up "building block" method. Two G-E 4000/4600-kva master unit substations were installed in 1947, two more in 1949. One-line diagram (inset) shows type of standardized duplex station used.

Missouri utility plans ahead for expansion using standardized G-E unit substations

Kansas City Power & Light gains system flexibility with "building block" approach

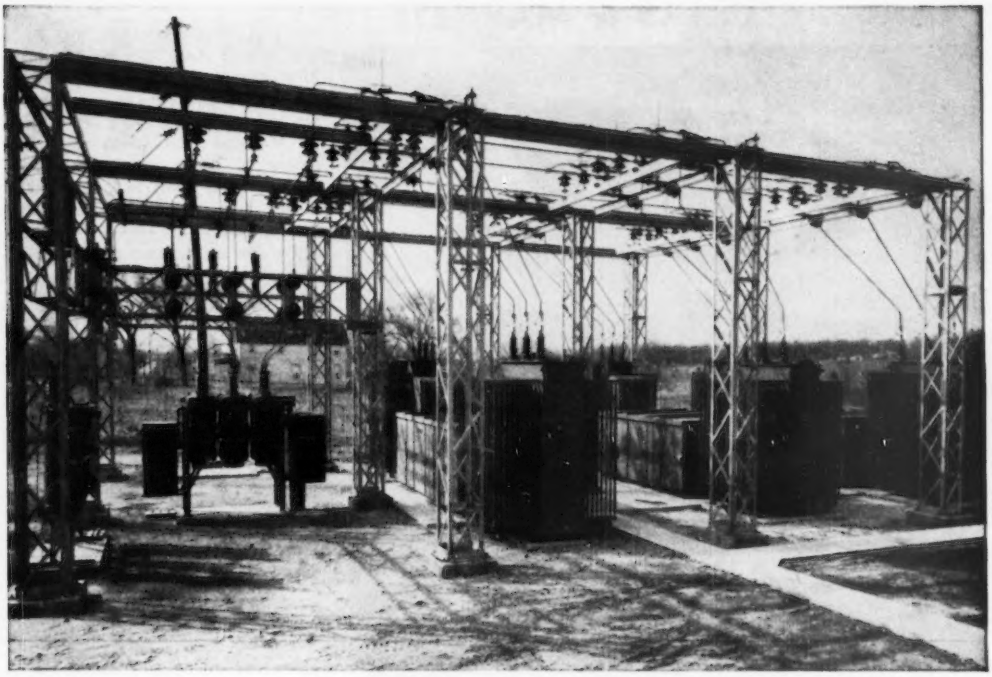
With 22 G-E standardized master unit substations installed over a five-year period, Kansas City Power & Light Co., Kansas City, Mo., knows the value of advanced planning—using duplicate units as "building blocks" in its system.

This "building block" method—which permits adding or removing capacity in easily handled, relatively small "blocks of power"—has enabled the Missouri utility to expand its system simply and economically. Engineers early decided upon the unit substation which best suited their purposes—in this instance, a G-E 4600-kva duplex unit.

In addition, utility engineers have achieved maximum flexibility to take care of unexpected load growth. They can meet load shifts simply by shifting the standardized G-E units. If the load should change radically, they can move quickly to other types of standardized G-E unit substations, still employing the "building block" approach.

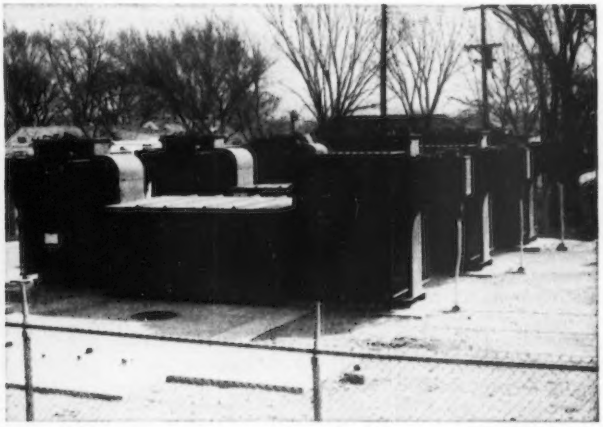
Your needs most likely parallel those of the Kansas City utility, and you, too, will find that advanced planning with the "building block" method keeps system investment as low as possible in relation to actual load. Small "blocks of power," with their flexibility and economy, give insurance against excessive investment in unused capacity.

At the same time, G-E factory-assembled master unit substations simplify planning and purchasing—save time in delivery and installation. And with G-E equipment, you are assured of dependable, first-quality components made possible by repetitive manufacturing methods. For full information, write for Bulletins GEA-3800 and GEA-4500. *General Electric Company, Schenectady 5, New York.* 321-100



STANDARDIZED SUBSTATION. Supplied complete by General Electric, 3 units and steel structure of Substation 30 were delivered ready for immediate installation. Factory-engineered substations simplify purchasing, save valuable engineering time.

CONCEALED BY TREES. This one-unit substation in residential area shows how proper planting can effectively camouflage installations.



READY FOR NEXT UNIT. Kansas City's Substation 84 has three duplex units already installed. Foundation, in foreground, is set for fourth unit, if required for increased load.

GENERAL ELECTRIC

DR ARTHUR W. WISHART, manager of glass manufacturing operations for Westinghouse's Lamp Division, turns first shovelful of soil for firm's new bulb plant at Hot Springs, Ark. Looking on are (left to right) Darrell Ware, president, Hot Springs Chamber of Commerce; Ralph Teed and C. Hamilton Moses, vice president and board chairman, respectively, of Arkansas P&L

Westinghouse Electric Expands

Five of firm's divisions embark on construction programs calling for new plants and additions

Five Westinghouse Electric Corp divisions have launched building programs. The divisions engaged in expanding their facilities are Sturtevant, Lamp, Appliance, Television-Radio, and Electronic Tube.

Sturtevant Division will expand its manufacturing operations in the Boston area soon with a $1,250,000 building at its plant in Hyde Park, Mass. The Hyde Park plant manufactures air conditioning equipment, commercial fans, and blowers.

To Accommodate Cranes . . . The new building will be one story high of bay type and will be constructed of steel, masonry and asbestos sheeting. It will be 360 ft long, 150 ft wide, 47 ft high and will provide more than 55,000 sq ft of usable manufacturing area. The structure will accommodate four ten-ton cranes for lifting large fans, components, and shafts.

Operations in the new building will provide new jobs for an estimated 200 people. Total employment at the Hyde Park plant will reach approximately 2,200 when the new facilities are fully manned.

One of the newest enterprises in the Southwest is the Lamp Division's two-square block plant built on a 20-acre tract at Paris, Tex. Machines of the L-shaped factory-office building are turning out a large portion of parts required for lamp manufacturing by other Westinghouse plants in the South.

NPA Approves . . . The Lamp Division recently started construction on its glass plant at Lake Catherine near Hot Springs, Ark., after the National Production Authority issued a certificate of necessity for the project. Leveling and excavation work was completed about three weeks ago. Dr Arthur W. Wishart, manager of the division's glass plants, took part in the recent ground breaking ceremony (see picture).

The first steel column of the Appliance Division's $20 million plant at Columbus, Ohio, was raised recently.

Conversion Contemplated . . . While assemblies for jet engines is the immediate purpose of this plant, it will some day be a major factor in the production of appliances, John H. Ashbaugh, vice president of the Appliance Division, said at the "cornerstone" ceremony for the Columbus building.

Built on a 350-acre site, this unit is the largest single plant yet to be built by Westinghouse and will cover more than 2 million sq ft of floor space. The plant will be two stories high and the office building section of it will be three stories high.

The new, multi-million dollar Television-Radio Division plant at Metuchen, N. J., is located on a 55-acre tract of land. The building is 986 ft long by 475 ft wide with a gross area of 420,000 sq ft. Designed for mass production of television and radio receivers, the plant has production lines straight as an arrow, down 60 ft wide bays the entire length of the building.

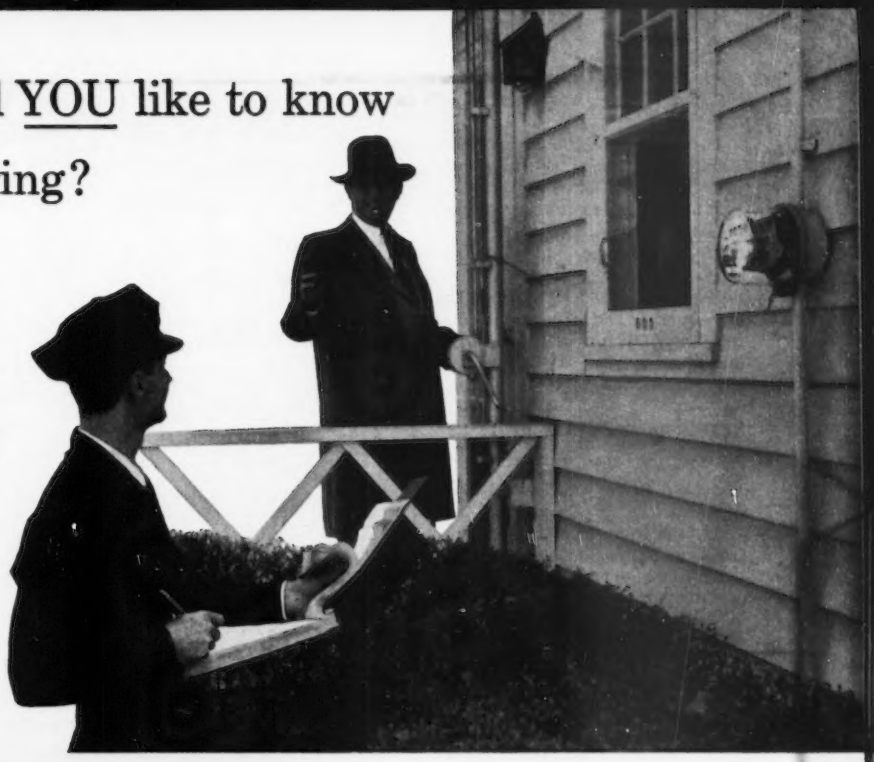
Finishes Construction . . . Electronic Tube Division has completed all building construction for its plant and division headquarters at Elmira, N. Y.

Located on a 114-acre tract four miles northwest of Elmira, the new plant houses headquarters executive offices, engineering laboratories, two separate manufacturing areas, warehousing, and shipping. The plant, which has a total working area of 365,000 sq ft, will manufacture television picture tubes for home use and classified government use.

General Electric's Offer Accepted at Hanford

Wage and benefit increases offered by General Electric Co at its Hanford (Wash.) Works have been accepted by the union bargaining units, subject to approval by the Atomic Energy Com-

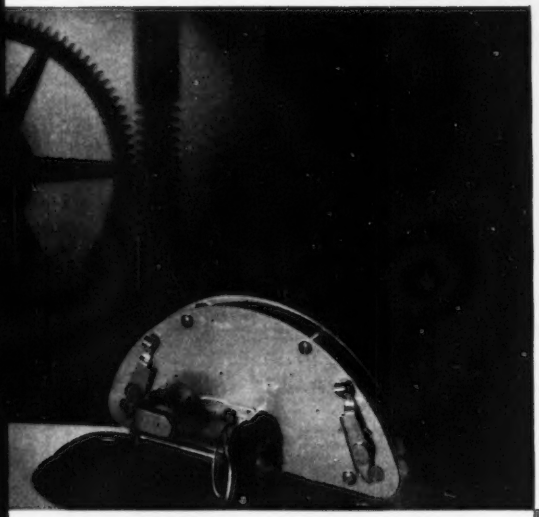
What would YOU like to know about metering?



Would you like to know how modern meters can promote good public relations?

Would you like to know how accurate meters facilitate fair pricing? How dependable meters can reduce operating costs? And, how well-designed meters save operating and maintenance expense for your company?

If you are interested in the answers to these and many other questions, get your copy of "Metering for Profit." It's yours for the asking.



WHAT IS A SHADOWGRAPH? This illustration, from "Metering for Profit," shows the magnifying device used to assure an exact adjustment of the mesh between the worm spindle of a meter disk and the worm wheel of the register. The use of the shadowgraph is another step to assure that your meters register fully all kilowatthours consumed.

Only Measured Facts are Known Facts

SANGAMO ELECTRIC COMPANY

SPRINGFIELD, ILLINOIS

Write for "Metering for Profit"

A non-technical report to utility company personnel concerning watthour meters. If you are interested in metering and its effect on profits, it should be "must reading." The coupon will assure you of a copy.

IT'S FREE!

SANGAMO ELECTRIC COMPANY, SPRINGFIELD, ILLINOIS

Please send my free copy of "METERING FOR PROFIT"

YOUR NAME _____

TITLE _____

COMPANY _____

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SM52-11

mission. The raises may also have to be approved by the Wage Stabilization Board.

The increases, which will add some $2 million to annual payrolls at Hanford, became effective Sept. 15 for both bargaining unit and non-bargaining unit employees.

The offer consists of a straight 2½% increase with a 3½¢ an hour minimum, plus a cost of living increase and added insurance benefits. It will add 7½¢ to 13¢ an hour to the paychecks of 9,000 employees.

MANUFACTURING BRIEFS

Aluminum Co of America will close three pot lines at Alcoa, Tenn., because of a shortage of hydroelectric power from its own and Tennessee Valley Authority plants. The long drought this summer and little rain since has resulted in low levels in reservoirs.

H. M. Harper Co has started construction on another addition to its plant at Morton Grove, Ill. The addition, which will have a 57,000-sq ft area, will house the firm's newly developed Aero Division. Harper's first 40,000-sq ft addition was completed last spring.

H. K. Porter Co, Inc, Pittsburgh, has acquired for cash the Watson-Stillman Co. Roselle, N. J., manufacturers of forged steel fittings and hydraulic equipment. Operations at Watson-Stillman will continue under the direction of Edwin A. Stillman, president. This firm's Fittings Division will be operated as a division of Porter.

SALES ASSIGNMENTS

COMPANY STAFFS

National Electric Products Corp, Pittsburgh, has named John Longden district manager of its newly established district office in Union Pacific Annex, Salt Lake City, which will serve Utah and southern Idaho. Longden, for the past nine years district manager for Westinghouse Electric Supply Co at Salt Lake City, will report to National's Western regional manager, R. G. Holabird, in San Francisco.

REPRESENTATIVES

States Co, Hartford, Conn., has appointed the following new representatives: Ambos-Jones Co, 1085 The Arcade, Cleveland, will cover Ohio, and E. B. Anderson Co, C.P.A. Bldg., Detroit, will cover Michigan.

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

Arkansas—Ozark Rural Electric Cooperative Corp., Fayetteville, rural distr. lines Fayetteville, $1,125,000. Frank Horton & Co., Lamar, Mo., consult. engrs.

Idaho—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Ririe transformers for Palisades Power Plant, Palisades Project, Spec. DS 3812. L. N. McClellan, ch. engr.

Iowa—Atchison-Holt Electric Cooperative, Rock Port, Mo., 18 mi. of 69 kv transmission lines, $90,000. Henningson, Durham & Richardson, Standard Oil Bldg., Omaha, Neb., engrs.

La., New Orleans—U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., electrical 13.8 kv distr. sys., sub-stations, curtain walls, etc., Michoud Ordnance Plant Eng. 41-243-53-11.

Missouri—Crawford Electric Co-operative, Inc., Bourbon, extens., imprvs. to rural distr. lines, sys., etc., Crawford Co. $785,000.

Missouri—Webster Electric Co-operative, Marshfield, 34 mi. rural distr. lines, sys. imprvs., Webster Co. $115,000.

Mo., Grandview—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., electric distr. sys., street lighting, substation facilities, Grandview Air Force Base, ENG 23-028-53-19.

Oregon—U. S. Eng., Pittock Block, Portland, electric elevator, Lookout Point Dam, Civeng 35-026-53-63, Lane Co. fourteen 123,800 hp. turbines, The Dalles Dam, Civeng 35-026-53-53, Wasco.

Washington—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing two vertical-shaft, 8,500-hp, 240-rpm, hydraulic turbines; two vertical-shaft 2,600 hp., 450-4pm hydraulic turbines; and two vertical-shaft, centrifugal pumps each with 167 cfs capacity under total head of 107 ft. for Chandler Power and Pumping Plant, Yakima Proj., Inv. No. DS-3805.

Wash., Seattle—P. Wks. Officer, Thirteenth Naval Dist., 1611 W. Wheeler St., bldg. alterations and other work at Naval Communication Station, Meadowdale facility in relocation of U. S. Coast Guard radio equipment. Specs. 35611.

Low Bidders & Contracts Awarded

Kan., Great Bend—Weller Bros. Constr. Co., Paradise, Kan., CA Total $3,000,000. 3 story, 15,000 kw power plant, on 80 acre tract. Western Light & Telephone Co., 2015 Forest Ave., Great Bend, Kan. Bids Aug. 15, awarded Sept. 13.

La., Baton Rouge—L. W. Eaton Co., P. O. Box 387, Baton Rouge, La. CA est. $100,000, television station. Station WAFB, Guaranty Life Bldg., Baton Rouge, La.

New Mexico—Irby Constr. Co., 815 S. State St., Jackson, Miss. CA $504,161, 568.27 mi. rural distr. lines and substation facilities, Lincoln Co. Central New Mexico Electric Co-operative, Mountainair, N. M. Hollis W. Harris, 711 Kentucky St., Amarillo, Tex. engr.

O. Parma—Austin Co., 16112 Euclid Ave., Cleveland, O., CA Approx. $750,000. Design and construct transmitter and 905 ft. tower for television station, WNBK, Cleveland at Broadview Rd. and Ridgewood Dr. National Broadcasting Co. Inc., 30 Rockefeller Plaza, N. Y.

Oregon—Lebanon Electric Co., 66 Sherman St., Lebanon, Ore., CA $201,-229, 51.3 mi. 69 kv rural distr. lines, Wheeler Co. Columbia Power Co-operative Assoc., Monument, Ore. Robert Welty, P. O. Box 282, The Dalles, Ore. engr.

Pa., Bloomsburg—Thomas Electric Constr. Co., 34 Price St., Kingston, Pa. LB. $79,500, electrical and signal distr. and campus lighting sys. Dpt. Property & Supplies, 319 N. Front St., Harrisburg, Pa. Bids Sept. 24.

South Dakota—Zontelli Bros., Ironton, Minn. CA, $805,307, 7.10 mi. rural distr. lines, Jones, Lyman and Stanley Counties, Proj. South Dakota 42 A4-Lyman, West Central Electric Co-operative, Murdo, S. D. Bids Aug. 13.

Va., Portsmouth—Grannis & Sloan, Thompson & Street & Wattinger, P. O. Box 484, Richmond, Va., LB $2,818,-200, radio transmitter facilities, Naval Communications Center, Monogram NOY 71277, Spec. 32847 P. Wks. Office, Fifth Naval Dist. U. S. Naval Base, Norfolk, Va. Bids Sept. 23.

W. Va., Bridgeport—Wheeling Electric Co., 51 16 St., Wheeling, W. Va., Owner Builds, $115,000, electric transformer station.

Alaska, Anchorage—Brown-Bovari, Baden, Switzerland, LB $279,000, generator;

Ont., Niagara Falls—Rayner-Atlas Ltd., 275 Huron St., Toronto, Ont., and Perini, Pitts, Walsh & Assocs., 38 Commercial Bd., Toronto, Ont., CA $118,000,000, second 5½ mi. power tunnel 45 ft. inside diam., for electric power development.

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

Kan., Galena—Eagle-Picher Sales Co., American Bldg., Cincinnati, O. zinc processing and sulphuric acid plant, $4,000,000.

Kan., Wichita—Town & Country Estates Inc., c/o Wheeler-Kelly Hagny Trust Co., 120 S. Market St., shopping center on 25 acre site near Douglas, Woodlawn and Lynwood Sts., $4,000,-000.

La., Angola—State Bldg. Auth., State Capitol, Baton Rouge, plans by Curtis & Davis, 822 Perdido St., New Orleans, imprvs. at State Penitentiary, $4,000,000.

Mich., East Lansing—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, plans by Ralph R. Calder, 1212 Kales Bldg., Detroit, brick, steel men's living center, incl. 3 dormitories, 1 food service structure, Michigan State College, Michigan Ave. and Harrison Rd., $11,500,000 (First unit, $7,500,000.)

Mich., Fruitport—Thompson Products Inc., 1017 Fisher Bldg., Detroit, 1 story, Brick, concrete, steel factory, $2,000,000.

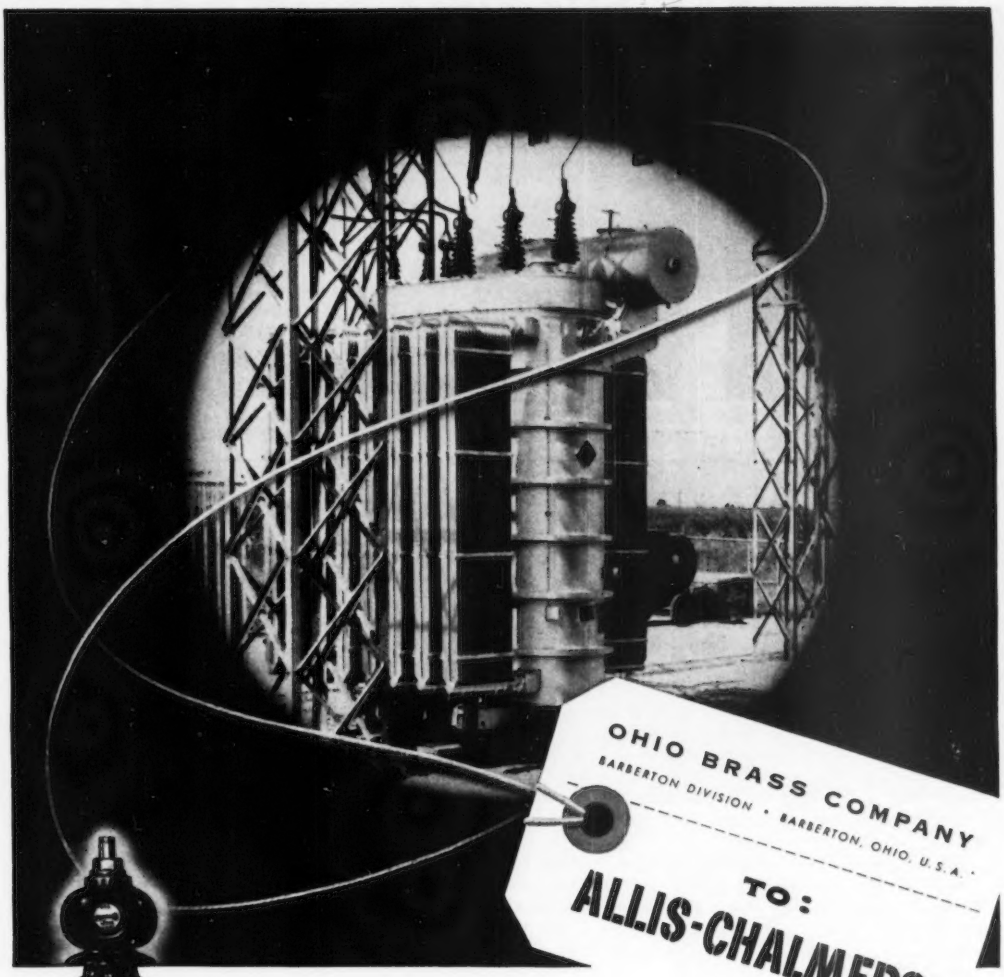
Mich., Livonia—Sheldon Co., Warren Sheldon, pres., 32121 Plymouth St., 250,000 sq. ft. brick, concrete shopping center, 153x560 ft. main bldg., Parking facilities, $5,000,000, Charles N. Agree, 1140 Book Bldg., Detroit, Mich., archt.

Low Bidders & Contracts Awarded

La., New Orleans—Gervais F. Favrot Co., Balter Bldg., New Orleans, La. CA Est. $3,000,000, Hotel-office. Harry Latter, c/o contractor.

Miss., Columbus—D. S. McClanahan & Sons, Columbus, Miss. CA, Est. $3,500,000, chemical plant, Oldbury Electro-Chemical Co., Buffalo Ave. and 50 St., Niagara Falls, N. Y.

N. Y., New York—Charles & Milton A. Kimmelman, 745 Fifth Avt., New York 22, N. Y. Separate Contracts $3,000,000, 18 story office, Fifth Ave. and 46 St. to be called 555 Fifth Ave.



Serving an important metropolitan load in the Southwest, this Allis-Chalmers power transformer has the following characteristics, according to its manufacturer: "OISC, primary 60 kv, secondary 12.47 kv, 15,000 kva, 3-phase, 60-cycle, 55-degree C rise. Equipped with 'Oil-Sealed' inert gas preservation system, as pioneered by A-C and now standard on over five million kva of power transformers. Among other factors contributing to highest reliability are . . ."

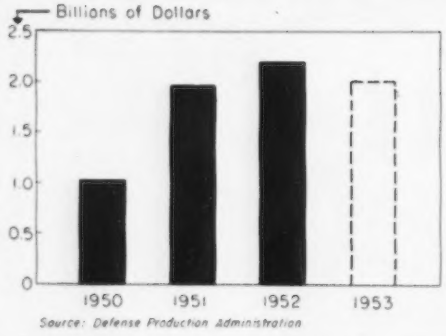
BUSHINGS
ONE OF THE FINEST COMPONENTS
OF ANY TRANSFORMER

Ohio Brass
MANSFIELD OHIO, U.S.A.

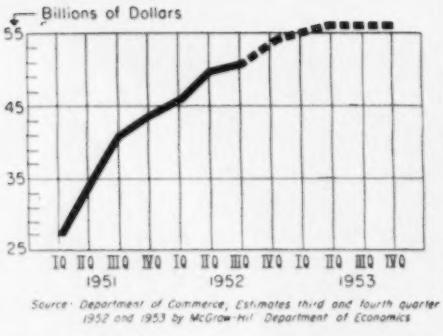
4240-H

ELECTRICAL BUSINESS OUTLOOK

Defense Spending Levels Out and so Does Plant Construction



Source: Defense Production Administration



Source: Department of Commerce, Estimates third and fourth quarter 1952 and 1953 by McGraw-Hill Department of Economics

What's Happening to Defense Spending?

The U. S. has a new kind of defense program. It's not the program that was talked up early in 1951—the Wilson Plan. And it isn't just a "stretchout" either. It's something new and different. And the change to this program from the others may have far-reaching effects on the course of general business.

The first big defense program—the Wilson Plan—called for arms spending to hit a peak annual rate of $65 billion by mid-1952, then tail off to a maintenance level of procurement. This was to equip an armed force of 3½ million men, supply weapons to our allies, and provide a large reserve supply of weapons.

But now it is almost 1953—and defense spending has barely passed a rate of $50 billion a year. Obviously, the original schedule has not been met. This happened partly because of unforeseen production difficulties. But the chief reason for it was a decision to shift the emphasis of the whole program.

Production Ability Ousts Production . . . Instead of equipping an armed force in a hurry and then merely maintaining it, the new program aims at maintaining the ability to equip with the latest weapons in the shortest time if war threatens. That means more emphasis on developing new weapons, less emphasis on production today.

The program has not been cut—in fact, the goals are bigger than ever. But the goals have been pushed into the future. Instead of producing a lot of current airplanes, for instance, the Air Force has decided to plan ahead for greater output of more advanced planes—sometime in the future.

Why are goals pushed ahead? Mainly to take advantage of technical advances in weapons design. The services don't want to spend all their money on a big stock of current weapons, then be caught short with obsolete equipment if war comes in, say 1955.

Washington still plans on a fully equipped Army, Navy, and Air Force. But now the target date is 1955; it used to be 1953. And it's a good bet that the date for full production will always stay two years or so in the future unless the threat of war becomes imminent—because it takes that long to get weapons into production.

Budget considerations play a part in these decisions, too. It will cost more, in the long run, to carry on this new program. But it will cost less in any one year because there will be no high peak of production.

Spending will peak at about $56-$57 billion, stay close to that level for some time. We should reach that rate by the middle of 1953, may hold near it through 1954 and perhaps even longer.

New Plan Has Good and Bad Points . . . The two key economic facts about this program are (1) that production won't go as high as originally planned, and (2) that it won't drop off fast once it hits the peak. These facts are both good news and bad news for general business.

The defense program won't be so inflationary under this schedule. That's good news. Federal deficits won't be as big as expected (perhaps $4 billion for the year ending next June 30). And there will be more materials and manpower available for private business. Defense spending will help hold up incomes and employment for a longer time. Instead of tailing off rapidly after a high peak, defense spending will stay near its peak for a year or more.

But the new program makes some tough problems for private business. For one thing, defense spending won't be increasing much from now on. That means that the constant stimulation of rapid growth in defense business will have to be replaced by some expansion in private activity, or the general level of business will begin to taper off. Some "defense supporting" production has already started to taper off (see chart).

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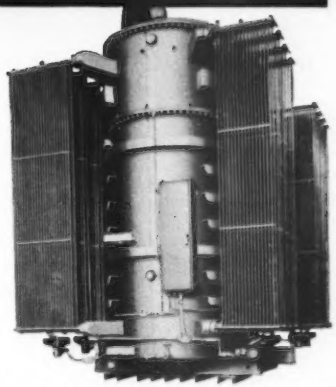

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